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ABSTRACT

This evaluation examines the impact of the first 6 to 7 months of the Washington Scholarship Fund (WSF) programs on students in grades 2-8 who had previously been attending public school, but had changed to private ones. More than 6,000 students had applied by lottery to a WSF school voucher program. The evaluation estimates the program's impact on student test scores in reading and mathematics as well as other educational and social outcomes. Private-school African-American students in grades 2-5 outperformed their public-school peers by three national percentile points in reading and seven points in mathematics, but trailed their public-school peers in reading by eight points. No significant differences between the test score performance of non-African-American students in private schools were observed in either reading or mathematics. An appendix contains three parts: (1) a discussion of the procedures for adjusting weights; (2) tables of characteristics for those who did and did not attend the follow-up testing sessions and results of logit models used to estimate weights; and (3) full results from equations estimating impacts on test scores. (DFR)

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School Choice in Washington, D. C.: An Evaluation After One Year

by

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February 2000

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School Choice in Washington, D. C.: An Evaluation After One Year
(Executive Summary)

In the fall of 1997 the Washington Scholarship Fund announced the expansion of a previously establishment, privately-funded school voucher program in Washington, D.C originally established in 1993. In the spring of 1998, over six thousand students from public and private schools applied to the new program; of these initial applicants, over one thousand were offered scholarships.

WSF awarded scholarships by lottery, thereby making it possible to conduct an evaluation designed as a randomized field trial. This evaluation examines the impact of the first six to seven months of the WSF program on the students in grades 2-8 who had previously been attending public school but shifted to private schools in the fall of 1998. Specifically, the evaluation estimates the program's impact on student test scores in reading and mathematics as well as other educational and social outcomes, as reported by parents and students. In 1999 the Children's Scholarship Fund, a nationwide school-choice scholarship program, provided additional support to the WSF program.

The main findings of this initial evaluation are that

- 95 percent of those participating in the program were African American.

- African American students who switched to private schools in grades two through five outperformed their public-school peers by 3 national percentile points in reading and 7 points in math. The difference in student math performance is statistically significant, but the difference in reading is not.

- African American students attending private schools in grades six through eight scored 2 national percentile points higher in math but trailed their public school peers in reading by 8 points. The difference in reading is statistically significant, but the difference in math is not.

- No significant differences between the test score performance of non-African American students in private and public schools were observed in either reading or math.

- 46 percent of private-school parents gave their school an "A," as compared to 15 percent of public-school parents. This difference also manifested itself when parents were asked about specific aspects of school life. For example, 60 percent of the private-school parents, but only 20 percent of the public-school parents, said they were "very satisfied" with school safety. Additionally, 56 percent of the private-school parents, but just 17 percent of the public-school parents, were "very satisfied" with their school's academic program.

- Parents of those in public school were more likely to report that the following were serious problems at their school: students destroying property, being late for school, missing classes, fighting, and cheating. Fifty-five percent said fighting was a serious problem in public school, as compared to 25 percent in private school; forty-nine

percent claimed tardiness was a problem in public school, as compared to 34 percent in private school; thirty-seven percent of public school parents claimed property destruction was a problem at their schools, versus 17 percent of private school parents; forty-four percent of public-school parents and 18 percent of private-school parents claimed truancy was a problem; and 33 percent of public-school parents reported cheating to be a serious problem, as compared to 23 percent of private-school parents.

- Nearly 81 percent of those offered a scholarship reported success in finding a school they preferred. By comparison, only 48 percent of the public-school parents said their children went to a desired school.

- Students moving from private to public schools in lower grades adjust more quickly to their new educational environment than do students in the middle grades of six through eight. Whereas younger students attending private schools are more likely than public-school students to say students are proud to attend my school, the opposite results are obtained for students in the middle years. A similar pattern of responses is observed when students are asked what "grade" they would give their school, whether they like their school a lot, and whether students get along well with teachers. Suspension rates reported by parents for younger students are similar in private and public schools, 5 and 7 percent, respectively, but considerably higher in private school than public school for students in grades 6-8, 20 percent as compared to 3 percent.

- Parents report that public schools are larger—an average of 438 students in public schools, as compared to 217 students in private schools.

- Parents report that class sizes are smaller in private schools—an average of 18 pupils per class, as compared to 22 in public school.

- Parents of students in public schools were much more likely to report that their school had a nurse's office, cafeteria and special programs for non-English speakers. On the other hand, private-school parents were more likely to report that their school had individual tutors, an after-school program, and a program for advanced learners.

- A higher percentage of parents of students in private schools reported being notified when their child was sent to the office for the first time for disruptive behavior (90 percent, as compared to 63 percent for public-school parents), receiving notes about their child from the teacher (94 versus 77 percent), receiving a newsletter about what is going on in school (91 versus 69 percent) and parents participating in instruction (69 versus 53 percent).

- Private schools assign more homework than public schools, according to parent reports. Private school parents also are more likely to describe their child's homework as "appropriate" in its level of difficulty.

The evaluation also provides information relevant to the following issues that have been raised in the debate over vouchers:

- Critics of school-voucher programs often argue that school choice destabilizes students' education both during a given school year and from one year to the next. In Washington, once differences in graduation rates were accounted for, no differences in school mobility were observed between public and private schools either within the school year or in parental plans for the following year.

- Some critics have suggested that low-income families may base their school decisions on factors having little to do with their child's education. To examine this issue, we asked parents to list the three most important considerations in choosing the school the child attended. Sixty-eight percent said academic quality was the most important reason. The next two most important considerations, religious instruction and school discipline, were mentioned by 38 percent of the parents. Less than 2 percent included the sports program or child's friendships.

- Some have said that private schools will skim the "best and the brightest" of student applicants, refusing to admit students who face serious educational challenges. To observe whether this occurred in the District of Columbia, we compared those who made use of the scholarship with those who did not. No educational skimming was observed among younger students. There was no statistically significant difference in the educational performances of takers and decliners on the baseline reading or math tests of students entering grades one through five. However, takers in grades six through eight had higher initial test scores than decliners.

- In some respects, individuals who used their scholarships came from slightly more advantaged families. Scholarship takers had slightly higher incomes—an average of about $17,800, as compared to about $15,800. Mothers of takers had one-third of a year more education, were less dependent on welfare, and were more likely to be employed full-time. However, takers and decliners did not differ significantly in the likelihood that mothers and fathers were living together, the likelihood that the mother was married, or the average number of children in the home. Nor was there a significant difference in the likelihood that the mother was African American.

Operating for the first time on a large scale in 1997, WSF offered lottery winners annual scholarships of up to $1,700 to help pay tuition at a private elementary school for at least three years. Telephone applications were received between October 1997 and March 1998. In response to invitations sent by WSF in the spring of 1998, applicants attended verification sessions where eligibility was determined, students were tested, older students filled out short questionnaires, and adult family members completed longer questionnaires. The lottery was held on April 29, 1998. Fifty-three percent of children offered a scholarship took the scholarship and used it to attend a private school; 47 percent of children offered a scholarship declined the offer. The data reported in this paper are taken from student tests and responses from parents and students obtained at follow-up sessions in the spring of 1999.

It is too soon to ascertain the long-term impact of the voucher program sponsored by the Washington Scholarship Fund. Initial results, however, indicate that the educational climate in private schools is superior to that in public schools, and that parents with students in private schools are much more satisfied with their child's school. Home-school communications are more extensive in the private sector, and students are expected to do more homework. After six

to seven months in their first year after changing schools, African American students in grades two through five attending private schools outperformed their peers in math by 7 percentile points, a statistically significant difference. They also scored 3 percentile points higher in reading, but this difference is not large enough to be certain that the finding did not occur by chance.

However, the evaluation also indicates that students in their middle years – grades six through eight – have found it difficult to adjust when moving from a public to a private school. Since the data for the median student was collected in March of the first year of transition, it is not yet clear whether these adjustment problems will continue or dissipate. But these older students, in contrast to students in lower grades, reported less enthusiasm for their new school, were more likely to be suspended, and scored lower on the reading test than their public-school peers. However, no differences in the older students' math performance were observed.

It is premature to draw strong conclusions from these findings, but the results do suggest that vouchers for low-income families may be particularly effective, initially at least, if concentrated on students in lower grades. These students have fewer problems adjusting to private school and score higher in math after six or seven months in a private school setting.

The evaluation of the Washington Scholarship Fund's voucher program in Washington, D.C. is an activity of the Harvard Program on Education Policy and Governance, which is jointly sponsored by the Taubman Center on State and Local Government, Kennedy School of Government, Harvard University and the Center for American Political Studies in the Faculty of Arts and Sciences, Harvard University.

School Choice in Washington, D.C.: An Evaluation After One Year

In the past decade considerable data have been collected on how school vouchers impact low-income families and their children. [1] Ten years ago, the information available about this widely debated question came primarily from an experimental public-school choice program attempted in Alum Rock, California during the 1960s.[2] But beginning in 1990, new voucher programs sprouted across the country, in such cities as Milwaukee, Dayton, Cleveland, Indianapolis, San Antonio, and New York City. Initially, many of these studies were limited by the quality of the data or the research procedures employed. Often, planning for the evaluation began after the experiment was underway, making it impossible to gather baseline data or ensure the formation of an appropriate control group. As a result, the quality of the data collected was not as high as researchers normally would prefer.[3]

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[1] The authors wish to thank John Blakeslee, Leslie Curry, Douglas Dewey, Heather Hamilton, Tracey Johnson, John McCardell and Patrick Purtill of the Washington Scholarship Fund for their helpful co-operation with all phases of the evaluation. We are also grateful to the principals, teachers, and staff at the private schools in Washington who assisted in the administration of tests and questionnaires. We wish to thank especially David Myers of Mathematica Policy Research, who is a principal investigator of the evaluation of the New York School Choice Scholarship Program; his work on the New York evaluation has influenced in many, important ways the design of the Washington evaluation. We thank Robin Bebel and the staff of the Public Opinion Laboratory at Northern Illinois University for their assistance with data collection, processing, and preparation for analysis. We thank David Campbell, Matthew Charles and Martin West for their careful research assistance. We are particularly grateful to Tina Elacqua for her critical assistance in coordinating the 1999 data collection effort. Staff assistance was provided by Lilia Halpern and Shelley Weiner.

Support for the evaluation has been received from the Lynde and Harry Bradley Foundation, the John M. Olin Foundation, and the Walton Family Foundation. The findings and interpretations reported in this paper are the sole responsibility of the authors and are not subject to the approval of program operators or sources of financial support.

[2] R. J. Bridge and J. Blackman. *A Study of Alternatives in American Education: Vol. 4. Family Choice in Education* (Santa Monica, CA: Rand Corporation, 1978); Richard Elmore, "Choice as an Instrument of Pubic Policy: Evidence from Education and Health Care," In W. Clune & J. Witte, eds., *Choice and Control in American Education: Vol. 1. The Theory of Choice and Control in American Education* (New York: Falmer, 1990), pp. 285-318.

[3] Disparate findings have emerged from these studies. For example, one analysis of the Milwaukee choice experiment found test scores gains in reading and math, particularly after students had been enrolled for three or more years, while another study found gains only in math, and a third found gains in neither subject. Jay P. Greene, Paul E. Peterson, and Jiangtao Du, "School Choice in Milwaukee: A Randomized Experiment," in Paul E. Peterson and Bryan C. Hassel, eds., *Learning from School Choice* (Washington, D. C.: Brookings, 1998), pp.335-56; Cecilia Rouse, "Private School Vouchers and Student Achievement: An Evaluation of the Milwaukee Parental Choice Program," Department of Economics, Princeton University, 1997; John F. Witte, "Achievement Effects of the Milwaukee Voucher Program," paper presented at the 1997 annual meeting of the American Economics Association. On the Cleveland program, see Jay P. Greene, William G. Howell, and Paul E. Peterson, "Lessons from the Cleveland Scholarship Program," in Paul E. Peterson and Bryan C. Hassel, eds., *Learning from School Choice* (Washington, D. C.: Brookings, 1998), pp. 357-92; Kim K. Metcalf, William J. Boone, Frances K. Stage, Todd L. Chilton, Patty Muller, and Polly Tait, "A Comparative Evaluation of the Cleveland Scholarship and Tutoring Grant Program: Year One: 1996-97," School of Education, Smith Research Center, Indiana University, March 1998.

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Despite their limitations, these early evaluations provided program operators and evaluation teams with valuable opportunities to learn the problems and pitfalls accompanying the study of school vouchers. Subsequent voucher programs in Dayton, New York and Washington, D. C. were designed in such a way as to allow for the collection of high-quality information about student test-score outcomes and parental assessments of public and private schools. Because scholarships in these cities were awarded by lottery, program evaluations could be designed as randomized field trials. Prior to conducting the lottery, the evaluation team collected baseline data on student test scores and family background characteristics. One year later, the evaluation team once again tested the students and asked parents about their children's school experiences.[4]

Results from the evaluations in New York City and Dayton, Ohio have been reported elsewhere. This paper reports on the experiences of students and families participating in a privately funded voucher program in Washington, D.C. after one year's involvement. The evaluation was designed as a randomized experiment. This report evaluates the experiences of students in grades 2-8 who previously had been attending public school.[5] Specifically, the evaluation estimates the impact of the program on student test scores in reading and mathematics, as well as other educational and social outcomes, as reported by parents and students.

Washington Scholarship Fund Pilot Program

A privately-funded school voucher program, the Washington Scholarship Fund (WSF) pilot program, was originally established in 1993. At that time, a limited number of scholarships,

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Greene, Peterson, and Du, 1998 report results from analyses of experimental data; the other studies are based upon analyses of non-experimental data.

[4] Results in Dayton after one year are reported in William G. Howell and Paul E. Peterson, "School Choice in Dayton, Ohio: An Evaluation After One Year," Paper prepared for the Conference on Charters, Vouchers and Public Education, March 2000, sponsored by the Program on Education Policy and Governance, Kennedy School of Government, Harvard University, Cambridge, MA 02138. Website address: http://data.fas.harvard.edu/pepg/ Results from New York City are reported in Paul E. Peterson, David E. Myers, William G. Howell, and Daniel P. Mayer, "The Effects of School Choice in New York City," in Susan B. Mayer and Paul E. Peterson, *Earning and Learning: How Schools Matter* (Washington, D.C.: Brookings, 1999), Ch. 12.

[5] Baseline data from this evaluation are reported in Paul E. Peterson, Jay P. Greene, William G. Howell, and William McCready, "Initial Findings from an Evaluation of School Choice Programs in Washington, D. C.," Occasional

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which could be used at a private school of the family's choice, were offered to students from low-income families. By the fall of 1997, WSF was serving approximately 460 children at 72 private schools. WSF then received a large infusion of new funds from two philanthropists, and a major expansion of the program was announced in October 1997. Both general news announcements and paid advertising were used to publicize the enlarged school-choice scholarship program. WSF announced that, in the event that applications exceeded scholarship resources, winners would be chosen by lottery. The program expanded further in 1999 with support from the Children's Scholarship Fund.

WSF provided recipients with annual scholarships of up to $1,700 to help pay the costs of tuition at a private elementary school. The maximum amount of tuition support for high school students was $2,200. WSF has said that it will attempt to continue tuition support to the children in its program for at least three years and hopefully, if funds are available, until they complete high school. No family with income more than two-and-a-half times the poverty line was eligible for support. Families with incomes at or below the poverty line were awarded scholarships that equaled 60 percent of tuition, or $1,700, whichever was less. Families with income above the poverty line received smaller scholarships. To qualify, applicants also had to reside in Washington, D.C. and be entering grades K-8 in the fall of 1998.

Over 7,500 telephone applications to the program were received between October 1997 and March 1998; in response to invitations sent by WSF, over 3,000 applicants attended verification and testing sessions. The lottery selecting scholarship winners was held on April 29, 1998. WSF announced that it expected to award over one thousand scholarships, with a majority going to students not previously in a private school.

Paper, Program on Education Policy and Governance, Kennedy School of Government, Harvard University, September 1998. Available at http://data.fas.harvard.edu/pepg/.

Provided they gained admission, scholarship students could attend any private school in the Washington area. During the 1998-99 school year, students participating in the evaluation attended seventy-two different private schools. WSF made extensive efforts during the summer months of 1998 to inform scholarship recipients of private school options and provide additional assistance when needed in order to secure as many placements as possible.

Of those students offered scholarships, 53 percent made use of them to attend a private school. Seventy percent of the scholarship recipients who participated in the evaluation attended Catholic schools, 12 percent attended Protestant schools, 5 percent attended independent schools, 2 percent attended Islamic schools, and 2 percent attended other religious schools. For 9 percent of the scholarship students, it was not possible to determine the school's affiliation.

Of the students in the control group, 68 percent reported attendance at a District of Columbia public school, 11 percent at a charter school, 3 percent at a public school outside the District of Columbia, 2 percent at an education center, 5 percent at a Catholic school, and 4 percent at another private school. For 6 percent of the students it was not possible to determine the type of school that the student attended. Of those who declined the scholarship offered to them, 81 percent attended a District of Columbia school, 9 percent attended a charter school, and 3 percent attended an education center. For 4 percent of the decliners it was not possible to determine the type of school, and the remainder attended a variety of alternative schools.

Evaluation Procedures

The evaluation procedures that were utilized conform to those in randomized experiments. The evaluation team collected baseline data prior to the lottery, administered the lottery and then collected follow-up information one year later. This section summarizes each of the steps in the data collection effort.

Baseline Data Collection

During the eligibility verification sessions, students took the Iowa Test of Basic Skills (ITBS) in reading and mathematics. Students in kindergarten applying for a scholarship for first grade in the fall of 1998 were not tested at baseline, however. The sessions took place on Saturdays during February, March and April 1998 and generally lasted about two hours. The sessions were held at private schools, where students could take tests in a classroom setting. Private school teachers and administrators served as proctors under the overall supervision of the evaluation team and program sponsors. Tests were scored by Riverside Publishing, the producer of the ITBS.[6] Students in grades four through eight also completed a short questionnaire inquiring about their school experiences.

While children were being tested, adults accompanying them filled out surveys that asked about their satisfaction with their children's schools, their involvement in their children's education, and the parents' demographic characteristics. Parents completed these questionnaires in rooms separate from those used for testing. Administrators explained that responses to the questionnaire would be held in strict confidence and would be used for statistical purposes only. Respondents had considerable time to complete their surveys, and administrators were available to answer questions about the meaning of particular items.

Anticipating that a variety of people might accompany the children, questions were designed in such a way as to allow any caretaker familiar with the child's family and school experiences to respond to them. Although grandmothers and other relatives and guardians occasionally attended the sessions, parents completed 93 percent of the surveys. The remainder of the report, for ease of presentation, refers to survey responses as those of parents.

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[6] The assessment used in this study is Form M of the Iowa Tests of Basic Skills, Copyright c 1996 by The University of Iowa, published by The Riverside Publishing Company, 425 Spring Lake Drive, Itasca, Illinois 60143-2079. All rights reserved.

At baseline, 2,023 students were tested; 1,928 parent surveys asking questions about each child were completed; 938 student surveys were completed. Of the 2,023 students tested, 1,584 were not attending a public school at the time of application for a scholarship; of the 1,928 parent questionnaires, 1,446 were completed by parents of students who were not then attending a public school. Follow-up information was obtained only from families with children not in private schools at the time of application.

The Lottery

The evaluation team conducted the lottery in late April 1998. WSF staff then informed lottery winners in early May. If a family was selected, all children in that family entering grades K-8 in the fall of 1998 won the offer of a scholarship. In order to ensure that an adequate number of scholarships were given to students not currently attending a private school, separate lotteries were held for students in public and private schools. This procedure also assured random assignment to test and control groups of those families participating in the evaluation.

One of the conditions for participating in the lottery was agreement to participate in data collection procedures. Although not all parents answered all questions in the surveys, a high percentage answered most, ensuring that baseline information would be available for nearly all students and parents.

Because scholarships were allocated by a lottery conducted by the evaluation team, those offered scholarships are not expected to differ significantly from members of the control group (those who did not win a scholarship). Baseline data confirm this expectation. There were no statistically significant differences in demographic characteristics between those offered scholarships and those who were not.[7] Nor were there significant differences in initial test scores

[7] Demographic differences between treatment and control groups are reported in the appendix to Paul E. Peterson, Jay P. Greene, William G. Howell, and William McCready, "Initial Findings from an Evaluation of School Choice Programs in Washington, D. C. and Dayton, Ohio," Occasional Paper, Program on Education Policy and Governance, Kennedy School of Government, Harvard University, October 24, 1998. Available at http://data.fas.harvard.edu/pepg/

of scholarship winners and losers. Baseline test scores of those entering grades two through eight who were offered a scholarship averaged 30.4 national percentile points in reading and 23.8 in mathematics. Those not offered the scholarship averaged 30.3 national percentile points in reading and 22.8 points in math.

Collection of First-Year Follow-up Information

To estimate the impact of attendance for six to seven months at a private school on students and families, the evaluation team collected follow-up information between February 27 and May 1, 1999. The median scholarship group member was tested on March 9th, whereas the median control group member was tested on March 13th. The procedures used to obtain follow-up data were essentially the same as those used to collect baseline data, except that data were collected only from students who had not been in private school at the time of the initial scholarship application. Students again took the ITBS in mathematics and reading. Caretakers accompanying the child completed surveys that asked a wide range of questions about the educational experiences of each of their children. Students in grades four through eight also completed a questionnaire that asked them about their experiences at school.[8] Testing and questionnaire administration procedures were similar to those that had been followed one year previously.[9]

Since students required more time to finish their questionnaire and ITBS tests than parents needed to complete their surveys, time was available for senior staff to conduct recorded but anonymous focus-group sessions with some parents. Participants in the focus groups were selected randomly from those attending the testing sessions; some parents accompanied by small

[8] Since only two ninth graders completed follow-up tests and surveys, our analysis of the survey results is restricted to grades 1-8 and our examination of the test results is limited to grades 2-8.

[9] However, difficulties were encountered in the administration of the test at the initial pilot session. Test booklets were not available at the testing site for scholarship students in grades 3-8. Copies of the test arrived eventually but the amount of time available for testing may have been foreshortened. Significant effects on reading scores are not apparent, but significant effects on math performance are evident, probably because the math test was the last to be

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children, however, could not easily participate and other parents chose not to. Parental comments and anecdotes included in this report are taken from transcripts of these focus-group sessions.[10]

To obtain a high participation rate in the follow-up data collection effort, decliners and members of the control group were both compensated for their expenses and told that they would automatically be included in a new lottery, Washington Scholarship Fund and the Children's Scholarship Fund, if they participated in the follow-up sessions. Follow-up survey information was obtained for 1,052 students from parents and caretakers. Follow-up test information was obtained from 995 students who had also been tested at baseline, a response rate of 63 percent. Of these students, 486 were members of the control group and 509 were members of the treatment group. To adjust for non-response, baseline demographic and test score information was used to weight student test score results and parental responses. The Appendix compares the characteristics of participants and non-participants in follow-up sessions and describes the weighting procedures used in the analysis.

Data Analysis and Reporting Procedures

The analysis of the data from the first year of the WSF program takes advantage of the fact that a lottery was used to award scholarships. As a result, it is possible to compare two groups of students that were similar, on average, except that members of the control group were not offered a scholarship.

This report provides data that help answer two questions. The first question is as follows:

> What was the impact of the *offer* of a WSF scholarship to a group of low-income scholarship applicants, as measured by test scores and as perceived by applicants and their parents?

This question can be answered straightforwardly by comparing the responses of those who were offered a scholarship with the responses of the control group. Because scholarships were

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administered. Statistical adjustments in the test score analysis take into account the special circumstances of the pilot session.

awarded at random, the two groups may be assumed to be, on average, equivalent statistically, save the offer of a scholarship. Any differences between the two groups can be attributed to the offer of a scholarship.

To compute program impacts on children's test scores, we estimated a statistical model that took into account students' scholarship or control-group status as well as baseline reading and math test scores. Baseline test scores were included to: 1) adjust for minor baseline differences between the treatment and control groups on the achievement tests; and 2) to increase the precision of the estimated impacts. To compute program impacts on parent and student survey outcomes, the same analytic approach was used, except that no adjustments were made for baseline test scores.

The answer to the first question is provided in columns one, two and three of tables 3 to 17 in this report. Column one of these tables provides the responses of those offered a scholarship by WSF, column two provides responses of the control group, and column three is the estimate of the impact of an offer of a scholarship, which is the difference between columns one and two.

For some policy analysts, this first question is the crucial policy question: What happens when a school choice program is put into effect? How does the program impact the population of low-income families who were offered a school-choice scholarship? This query is similar to a question often asked in medical research: What will happen if a particular pill is marketed? How will the health of potential users be altered, whether or not all patients use the pill as prescribed?

This analytic strategy has certain methodological advantages because calculation of the impact of the scholarship offer is quite straightforward. However, it has the important disadvantage of assuming that usage rates of scholarships are fixed when in fact they might be highly variable, depending upon the size of the scholarship, the time the scholarship is offered,

[10] Parental comments illustrate findings from the surveys but do not constitute a random sample of parental opinion.

and the marketing of the program as a whole. Also, if programmatic impacts are substantial, participation rates may increase with the passage of time.

For these reasons, most analysts want an answer to the second question as well:

What was the impact on low income students in the first year of shifting from a public to a private school in the District of Columbia?

In medical research, the parallel question is: What are the consequences of actually taking a pill, as prescribed?

The answer to this second question requires a comparison between those attending a private school and a comparable control group attending a public school.[11] In tables 3-16, therefore, column four provides the an estimate of the responses of those attending a private school in the first year; column five reports an estimate of the responses of the appropriate control group; and column six provides an estimate of the impact of attending a private school in the first year, the difference between columns four and five.

To simplify the presentation, the text of this report will discuss, for the most part, the impact on students and families in the first year of the child's *attendance* at a private school, that is, the responses of those who attended private school (column four), the appropriate control group (column five), and the differences between them, interpreted as the impact of attending a private school (column six). Readers who are interested primarily in the effect of an *offer* of a scholarship will want to examine the first three columns of the tables.

Response Bias

It is well known that people tend to over-estimate their good behaviors and under-estimate their less attractive ones. We are more likely to over-estimate our smiles than our frowns, our vitamin than our fat intake, our minutes spent exercising than those spent sitting on the couch.

[11] To compute the program's impact on those who used a scholarship to attend a private school, we used an instrumental variables estimator. This procedure is discussed in Joshua D. Angrist, Guido W. Imbens, and Donald B.

Students and parents are no different. Students are likely to over-estimate the time spent on homework, and parents are likely to over-estimate the frequency they volunteer at school. Parents may also view the school their child attends through rose-tinted glasses; after all, few responsible parents are likely to admit to themselves or to others that they are sending their child to a terrible school.

The interpretation of data from the parental and student surveys needs to take into account this very human tendency. No special weight should be placed on the actual frequency with which any particular type of event is said to occur. But if absolute levels may not be estimated accurately, there is no reason to believe that the two groups of parents—scholarship recipients and members of the control group—differ in the accuracy of their reports. After all, individuals were assigned randomly to the two groups, and any reporting bias should be similar for the two groups. Thus, this report, for the most part, emphasizes differences between groups rather than the absolute value of responses reported by either scholarship recipients or members of the control group.

An additional qualification is in order. One must qualify any generalizations from the results of this pilot program to a large-scale voucher program that would involve all children in the District of Columbia. Only a small fraction of low-income students in Washington public schools were offered scholarships, and these scholarship students constituted only a small proportion of the students attending private schools in the District of Columbia. A much larger program could conceivably have quite different program outcomes.

Still, slightly larger voucher programs directed at low-income families initially will attract those families with the greatest interest in exploring an educational alternative, exactly the group that applied for a WSF scholarship. Thus, positive consequences of school choice reported herein

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Rubin. "Identification of Causal Effects using Instrumental Variables," *Journal of the American Statistical Association*, 91 (1996), 444-462. A brief description of the approach is presented in the Appendix.

may prove encouraging to those who seek to extend and expand school choices for low-income, inner-city families and negative findings indicate some of the problems associated with doing so. It is hoped that additional careful research will accompany larger programs established by private philanthropists and/or public authorities.

Participation in Scholarship Program

An important issue in the school choice debate concerns the ability of different families to take advantage of scholarship programs. School choice critics have argued that vouchers will only serve the better off. In the words of educational sociologist Amy Wells, "White and higher-SES [socio-economic status] families will no doubt be in a position to take greater advantage of the educational market."[12] The president of the American Federation of Teachers (AFT), Sandra Feldman, has claimed that vouchers for private schools take "money away from inner city schools so a few selected children can get vouchers to attend private schools, while the majority of equally deserving kids, who remain in the public schools, are ignored."[13] Evaluations of school-choice scholarship programs in Cleveland, New York City, and San Antonio, however, indicate that private schools readily admit members of economically and socially disadvantaged groups.[14]

It is clear from focus group conversations with parents that scholarship applicants had both higher performing and lower performing children. One Washington mother, seeking a scholarship, explained the problems her son was having in public school:

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[12] Amy Stuart Wells, "African-American Students' View of School Choice," in Fuller and Elmore, eds., *Who Chooses?* p. 47.

[13] Sandra Feldman, "Let's Tell the Truth," *New York Times*, November 2, 1997, p. 7 (Advertisement).

[14] Paul E. Peterson, David Myers, Josh Haimson, and William G. Howell, "Initial Findings from the Evaluation of the New York School Choice Scholarships Program," Occasional Paper, Program on Education Policy and Governance, Taubman Center on State and Local Government, Kennedy School of Government, Harvard University, Cambridge, MA, November 1997. Jay P. Greene, William G. Howell, and Paul E. Peterson, "Lessons from the Cleveland Scholarship Program," in Paul E. Peterson and Bryan C. Hassel., eds., *Learning from School Choice* (Washington, D. C.: Brookings,1998), pp. 357-94. Paul E. Peterson, David Myers and William G. Howell, "An Evaluation of the Horizon Scholarship Program in the Edgewood Independent School District, San Antonio, Texas: The First Year," Occasional Paper, Program on Education Policy and Governance, Harvard University, Cambridge MA, October, 1999.

> And he's been suspended. . . . 'Cause he won't stay in the classroom. He disrupts everything. He won't do anything. . . . It's because of how they treat the children. How they speak to the children. There's no respect at all in the school building at all.[15]

Another parent's comments about her child were quite different:

> I don't think that the public school is giving him the challenge that he wants. He does do his work and he's fast. . . . And that's why I'm trying to get him into a private school because I'm sure it would be a better challenge for him.[16]

Responding to this comment, another mother said:

> I'm really not satisfied with her first teacher when she attended the third grade. She failed my daughter the first two quarters. I know my daughter has an attitude problem. I know her mouth is kind of smart. . . . And by the teacher not helping me to help her, [it's] just giving her more attitude and pushing her away. . . . I want to hurry up and get her into private school because I don't want her transition to catch her when she gets older. I want her to learn it and know it now before she get any older and it be harder and she like, I can't do it."[17]

As we shall see, the last observation seems particularly prescient.

More systematic information bearing on the question of creaming may be obtained by comparing the educational characteristics of those in Washington who made use of the scholarship offer (the takers) with those who did not (the decliners). As can be seen in Table 1, in some respects, the takers and decliners did not differ significantly. Takers were no less likely than decliners to be described by their parents as having a learning disability, a physical disability, or difficulty understanding English well. Also, no statistically significant differences are observed in the baseline math and reading scores attained by the younger takers and decliners (who were to enter grades two through five). However, older takers entering grades six to eight had higher initial math and reading test scores than did the older decliners. Test score differences in the two subject areas were 6 points and 9 points, respectively. Yet test scores had no significant effect on whether or not parents of students in either the early or middle grades said the student had been denied admission to a private school. If these reports are accurate, then the difference in

[15] Focus group session, Washington, D.C., April 18, 1999.
[16] Focus group session, Washington, D. C., March 6, 1999.

test scores between the takers and decliners in the older cohort of students appears to be the result of parental decisions, with parents of older children with higher test-scores more likely to accept and use the scholarships, and not private school admissions requirements. As we shall see later in this report, the reluctance of parents to switch lower-performing students in grades six to eight from public to private schools may be well founded.

Table 2 reports differences in the demographic characteristics of takers and decliners. In some respects, the two groups are quite similar. No statistically significant differences between takers and decliners were reported in the mother's ethnic background, the likelihood that the mother and father were living together, the likelihood that the mother was married, or the average number of children in the home. Takers were no more likely than decliners to have lived at the same address for more than two years. However, those who declined the scholarship did have somewhat lower incomes, an average of $15,800 as compared to an average of $17,800 for those taking the scholarship. Decliners were also more likely to be dependent on government welfare assistance; over 40 percent of the decliners were receiving welfare, as compared to a little more than one-third of the takers. Mothers of takers were also likely to have had, on average, an additional third of a year of education, and they were somewhat more likely to be employed. Taker families were somewhat less likely to be Baptist (a 13 percentage point difference), and somewhat more likely to be of another Protestant faith. However, they were no more likely to be Catholic than decliners or to profess no religion.[18]

Selecting a School

School choice advocates say they wish to empower parents by giving them a choice among schools. But critics say that parents, especially poor parents, do not usually have enough

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[17] Focus group session, Washington, D. C., March 1, 1999.

[18] As explained above, when estimating the effects of the scholarship program, we adjust for differences between takers and decliners. Statistical techniques allow an estimation of the effect of actually using a scholarship in a way that takes into account demographic and other differences between takers and decliners.

information to make intelligent choices, and, when given a choice, academic considerations are not paramount. The Carnegie Foundation for the Advancement of Teaching has claimed that "when parents do select another school, academic concerns often are not central to the decision."[19] But Caroline Hoxby has found that when public schools face greater competition (due to a larger number of separate school districts within a single metropolitan area), parent involvement in schools increases, student achievement rises, more students attend college, and graduates earn more. Also, Schneider et al. show that parents who have definite educational preferences and are given a choice of schools tend to place their kids in schools that reflect those preferences.[20]

These findings may be limited to middle-class families living in suburban areas, and have little bearing on the educational experiences of low-income families. A Twentieth Century Fund report claims that low-income parents are not "natural 'consumers' of education. . . [Indeed], few parents of any social class appear willing to acquire the information necessary to make active and informed educational choices."[21] Similarly, an American Federation of Teachers' report on the Cleveland voucher program suggests that parents sought scholarships, not because of "'failing' public schools" but "for religious reasons or because they already had a sibling attending the same school." [22]

To determine how Washington parents selected a school, they were asked to identify from a long list the three most important reasons for selecting their child's school. Parents were also given the option of saying the school selected "was the only choice available." As can be seen in

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[19] Carnegie Foundation for the Advancement of Teaching, *School Choice: A Special Report* (Princeton, New Jersey: Carnegie Foundation for the Advancement of Teaching, 1992), p. 13.

[20] Caroline M. Hoxby, "Analyzing School Choice Reforms Using America's Traditional Forms of Parental Choice," in Peterson and Hassel, eds., p. 144; Mark Schneider, Paul Teske, Michael Mintrom, and Sam Best, "The Empirical Evidence for Citizen Information and a Local Market for Public Goods," American Political Science Review, 89, 1995: 707-709. Also, see Mark Schneider, Paul Teske, Melissa Marschall, and Christine Roch, "Shopping for Schools: In the Land of the Blind, the One-Eyed Parent May be Enough," American Journal of Political Science, 42, 1998: 489-501.

[21] Carol Ascher, Norm Fruchter, and Robert Berne, *Hard Lessons: Public Schools and Privatization* (New York: Twentieth Century Fund Press, 1996), pp. 40-41.

[22] Dan Murphy, F. Howard Nelson and Bella Rosenberg, "The Cleveland Voucher Program: Who Chooses? Who Gets Chosen? Who Pays?," (New York: American Federation of Teachers, 1997), p. 10.

Table 3, the most frequently mentioned reason for selecting a school given by parents of students in private school was the school's academic quality, mentioned by 68 percent of the parents. Over a third of the parents also cited religious instruction and school discipline. More than a quarter of the parents also mentioned class size, teacher quality, and school safety. Less than 2 percent said the sports program or children's friendships were among the three most important reasons for selecting their private school.

Obtaining the School of Choice

Still another component of the school-choice debate concerns the ability of low-income families to gain access to the private sector. School-choice critics have said that private schools will construct academic and financial barriers to prevent parents from obtaining the school of their choice. In the view of Bruce Fuller and his colleagues, for example, the choice often belongs to the school, not the parent.[23]

The experiences of the WSF voucher program should alleviate some of these concerns. Despite the fact that scholarships were not awarded until late April 1998, just a couple of months prior to the end of the previous school year, over 70 percent of those offered a scholarship reported success in finding a school they preferred (Table 4). By comparison, little more than half the families in the public-school control group also said their children went to a desired school.

In focus-group conversations with parents who did not make use of the scholarship offered to them, a number of explanations were offered. For one parent, cost-considerations were paramount:

> I declined on it because I couldn't afford to pay the difference. It was just too much... the fees are just too much...a lot of things that they receive in public school it's like an extra fee in a private school.

Another parent said that two of her children had received the scholarship but did not use it:

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[23] Bruce Fuller et al., *School Choice* (Policy Analysis for California Education, University of California, Berkeley and Stanford University, 1999).

Parent: I didn't do that because ... I didn't know I was going to get it so I wasn't prepared. When I knew all the things you had to go through to.... it was like the end of the school year anyway.
Focus group leader: It was pretty late in the year that you had found out, right?
Parent: Exactly. So I didn't bother doing it.

Another parent explained how a school's admissions policies kept them from using the scholarship:

Parent: The scholarship--we received it too late--because the school that she wanted to attend you had to go to summer school and it was too late to enroll in summer school so I declined.
Focus group leader: So you are going to try to get it this year?
Parent: I got the notice in time and filled out the application and paperwork now so hopefully we'll be right in line for the summer school session.

Another focus-group participant said she turned down the scholarship because she felt she could get what was needed in the public schools:

> He didn't use it last year and we didn't want to because we got the public schools to act. He's a special ed. student.[24]

To obtain more systematic information, all those offered scholarships who did *not* gain admission to the school of their choice were asked to indicate all the reasons why.[25] The most frequently mentioned reason given by parents for not gaining admission to a preferred school was the remaining cost of private education, a response given by 14 percent of those offered vouchers. Since scholarships covered only about one-half the tuition cost, this is not surprising. "Transportation problems," "no more space at the school" and the family "applied too late" were the reasons next most frequently mentioned—this time by around 4 to 5 percent of those offered scholarships. Less than 3 percent simply said their child was not given a space at the school. Other reasons mentioned by less than 2 percent of all those offered scholarships, listed in descending order of frequency, were as follows: inconvenient location; communication problems;

[24] Focus group session, Washington, D.C., March 6, 1999, afternoon session.
[25] Since parents were invited to list more than one reason, one cannot add together the numbers in Table 4; instead the responses should be compared to see the relative importance of the various reasons parents gave.

the family had moved; child did not pass the admissions test; and family not a member of the affiliated church.

School Expenditures and Facilities

Comparisons in the expenditures of public and private schools are difficult to make, because reliable, systematic data on private-school expenditure is not readily available, and because public schools pay for services, such as transportation and school lunch, that may not be provided by private schools. However, rough estimates can be obtained by excluding public expenditure for services not always provided by private schools and by taking into account the fact that private-school expenditure is likely to exceed tuition payments by a predictable amount. When these estimates are made, it appears that public-school expenditure per pupil in Washington exceeds private-school expenditure by approximately 92 percent.

This estimate is based on the following data and assumptions. Median tuition at the private schools attended by the scholarship students included in the evaluation was $2,600 in the year 1998-99. The average tuition at the private schools attended by the scholarship students who participated in the Washington evaluation was $3,113 per year.[26] The average is substantially higher than the median because of the high tuition charged by a few independent schools, such as Sidwell Friends, the school attended by Chelsea Clinton, which charged over $15,000 per year. Based on information from a large private-school system in another large city, educational expenditures, on average, are estimated to exceed tuition by about 28 percent.[27] If total per pupil

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[26] Private school tuition rates were estimated in part from information provided in Lois H.Coerper and Shirley W. Mersereau. *Independent School Guide for Washington, D.C. and Surrounding Area*. 11th ed. (Chevy Chase, MD: Independent School Guides, 1998). For schools not listed in this volume, information was obtained in telephone conversations with school staff. Some schools have a range of tuition charges, depending on the number of students from the family attending the school and other factors. The tuition used for this calculation is the maximum charged by the school. The tuition also includes all fees, except for the registration fee, which is ordinarily treated as partial payment toward tuition. Figures are weighted proportionate to the number of students in the evaluation attending a particular school. Public-school expenditure includes the costs of transportation and special education, which may not be provided by private schools.

[27] Estimates are based on information about Catholic schools in three boroughs within New York City in an unpublished memorandum submitted to PEPG from the New York archdiocese in August 1999.

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expenditures in Washington's private schools exceed tuition by the same percentage, then expenditures in these private schools for the average student were $3,988 in the year 1998-99.

Average per pupil costs of the public schools in Washington was $8,812 in 1995-96, the last year for which reliable information is available.[28] However, this figure includes monies for ancillary costs, such as transportation, school lunch, capital costs and central administration, costs not incurred by all private schools. When public-school expenditures for services and programs comparable to those offered in private schools are considered, estimated average public-school per-pupil expenditure was $7,653 in 1995-96. Presumably, per pupil expenditure was higher in 1998-99. But if public-school expenditure remained constant after 1996, the amount spent per pupil was an estimated 92 percent higher than those in the private schools attended by the average scholarship student.

Given these differences in expenditure levels, one would expect to find more extensive facilities and smaller classes in Washington public schools. But reports from parents are only partially consistent with this expectation. Smaller classes require more teachers relative to the number of pupils, and the number of teachers in a school is a significant determinant of school costs. It is, therefore, surprising that public schools were said to have larger classes. Parents said public schools, on average, had 22 students in their classrooms, four more than those in private schools (Table 5).

In focus group sessions, Washington parents often expressed concern about the lack of resources in both public and private schools. In one focus group consisting mainly of public-school parents, the conversation ran as follows:

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[28] Data taken from the U. S. Department of Education, Office of Educational Research and Improvement. National Center for Education Statistics, *Common Core of Data, School Years 1993-94 through 1997-98*. (Washington, D. C.: 2000). Comparable data estimate excludes public-school expenditure for student transportation, food services, enterprise operations, non-elementary/secondary programs, adult education, capital outlay, payments to other school systems, payments to state governments, interest on school system debt, central support for planning research and management services, and unspecified support services.

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Mother: I mean my kids have come home and told me they don't even have toilet paper....That's ridiculous.
2nd mother: Oh, yeah, and they can't drink the water. They had to take a case of water to school.
3rd mother: My son took two cases of water to school because some of the kids can't really afford to bring them. They have to sit there all day without water.
4th mother: One day this week, ... the coldest day in school, --- didn't have any heat. The kids had sit in the classroom with coats on.[29]

Still, findings from the parental survey displayed in Table 5 suggest that the number of facilities and programs were more extensive in public schools than in private schools of the District of Columbia. Parents of students in public schools were much more likely to report that their school had a nurse's office. They were also considerably more likely to say the school had a cafeteria and special programs for non-English speakers—for each of these items, the differences were large, nearly 25 percentage points or more. Public-school parents were also somewhat more likely to say their school had a special education program, library and a computer lab. On the other hand, private-school parents were more likely to report that their school had individual tutors, a difference of 19 percentage points. Moreover, they were somewhat more likely to indicate that the school had an after-school program and a program for advanced learners. There were no significant differences in the parent responses with respect to the following facilities and programs: child counselors, arts and music programs, and a gymnasium.

According to parents, public schools are larger. As estimated by parents, the average size of the school attended by students in private schools was 217 students, as compared to an average size of 438 for those in public schools. In other words, the impact of attending a private school was to reduce the number of peers by 221 students or by 50 percent (Table 5).

Ethnic Composition of School

The degree of racial isolation in public and private schools has been a matter of considerable debate. Critics argue that school choice will lead to ethnic and racial segregation

and the balkanization of society,[30] while some research suggests that the private sector is more integrated than the public sector and that race relations in private schools are more positive.[31]

As can be seen in Table 6, parental reports on the ethnic and racial composition of their schools were inconsistent. By one measure, the voucher program has not led to increased racial and ethnic separation; by another measure, it has. Parents were asked, "What percentage of the students in this child's classroom are minority?" In response to this question, they were given the option of saying, "less than one-half", "about one-half", "more than one-half, but not everyone", and "everyone." On this item, attending a private school had no significant effect on the percentage of minority students in the classroom. However, parents were also asked, "What percentage of students in the class were of the same racial background" as your child? Responses to this question indicate that the program did increase racial separation. Sixteen percent more of the students in private schools attended racially homogenous classrooms than students in public schools. Given the inconsistency in the responses to the two questions, no strong conclusions should be drawn about the effect of vouchers on racial and ethnic segregation in Washington.

Special Education

In the debate over school choice, special education has received a good deal of attention. Critics of school choice say that private schools ignore the needs of students with physical and mental disabilities. For example, Laura Rothstein says that "choice programs often operate in a way that is either directly or indirectly exclusionary" of those with disabilities.[32] Defenders of

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[29] Focus group session, Washington, D.C., March 6, 1999.

[30] Michael Kelly, "Dangerous Minds," *New Republic*, December 30, 1996: Amy Gutmann, *Democratic Education*; Karl E. Taeuber and David R. James, "Racial Segregation among Public and Private Schools," *Sociology of Education* 55 (April/July 1982), pp. 103-22.

[31] Jay P. Greene, "Civic Values in Public and Private Schools," in Peterson and Hassel, eds. *Learning from School Choice*, pp. 83-106. For a discussion of the issue, see Gary Rosen, "Are School Vouchers Un-American?" *Commentary* (February 2000), 109:2, pp. 26-31.

[32] Laura F. Rothstein, "School Choice and Students with Disabilities," in Stephen D. Sugarman and Frank R. Kemerer, eds., *School Choice and Social Controversy*, (Washington, D. C.: Brookings Institution Press, 1999) p. 357.

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school choice often claim that many of those diagnosed as disabled can learn in regular classrooms and that special arrangements can be made for others.

To illuminate this question, parents were asked if their child had physical disabilities, learning disabilities or difficulty understanding English. Of those offered scholarships, there was no statistically significant difference in the number of reported disabilities or problems reported by the takers and decliners. These findings presented in Table 1 suggest that private schools do not systematically exclude students with disabilities from their schools.

Parents of students with learning disabilities were asked how well the school addressed their child's needs. As can be seen in Table 7, nearly half the private school parents reported the school was doing very well, as compared to a quarter of the public-school parents. Similar results hold for parents of students with difficulty understanding English. Two-thirds of the private school parents said the school was doing "very well" in addressing their child's English language deficiencies, as compared to about 40 percent of the public-school parents. No differences are detected for students with physical disabilities; about 30 percent of both groups of parents said the school was doing very well in meeting the student's special needs.

Because only a small percentage of families who applied for scholarships had special education needs, these results are hardly definitive. Still, if parental reports are to be believed, private schools seem as well or better equipped to meet the needs of students facing special educational challenges as are public schools.

School Climate

In John Chubb and Terry Moe's study of public and private schools, they found the educational environment of private schools is more conducive to learning than that of public schools.[33] They point out that public schools are governed by state laws, federal regulations,

[33] John E. Chubb and Terry M. Moe, *Politics, Markets and America's Schools* (Washington, D. C.: Brookings Institution Press, 1990).

school board requirements, and union-contract obligations that impose multiple and not always consistent rules on teachers and principals. Because they must respond to numerous legal and contractual requirements, school administrators and teachers focus more on rule-compliance than on educational mission, undermining the morale of educators whose original objective was to help children learn.

The problem, Chubb and Moe say, is particularly prevalent in big city schools, a viewpoint shared by a Dayton focus-group parent, who tried to explain the Catholic-school advantage in these terms:

> The other advantage to Catholic schools that I've seen is.... they're not governed by the Board of Education....And there's no bureaucracy. If your child needs this service and the school's providing it and it's working, there's one little tiny group that you go to..... You try fighting the Board of Education. I've done it. It can be done, but most of us don't have the energy.[34]

Private schools, operating with greater autonomy, focus more directly on their educational mission and, as a result, achieve a higher degree of internal cohesion, Chubb and Moe say. To do otherwise would jeopardize their survival as a fragile institution dependent upon the annual recruitment of new students. As a result, principals and teachers in the private sector enjoy higher morale. Their interactions with one another and with their students are more positive, fostering a more effective learning environment.

Chubb and Moe's findings were based on interviews with teachers and administrators. To see whether parents confirmed these reports, focus group parents were asked about order and discipline in public and private schools. One mother compared the public and private schools in terms of structure, "I like the structure [in the private school], which is why I took him out of public school. Where he was attending.... there was no structure."[35] Said another public-school parent:

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[34] Focus Group Afternoon Session B, March 20, 1999, Dayton, Ohio.
[35] Focus group session, Washington, D.C., March 6, 1999.

> The discipline is just not up to par. I mean, one day I ... just popped in and it was like, kids just running all over the class. I mean, the class size is enormous. I think it's too many kids for one teacher to handle.[36]

Another mother described an experience she had one day when she was monitoring the Stanford 9 test at her son's public school.

> My job was to walk around and to make sure everyone wasn't cheating. But I tell you this, when a teacher went to a kid's table, and I thought it was real wrong, and that kid put down the wrong answer, it was like [made a sound like clearing her throat. Those teachers wanted their kids to be like on top. I thought that was so wrong.[37]

On the other hand, one mother felt her public school was so excellent it was just like a private school:

> **Mother**: My daughter is in private school, [name of school given] and...
> **Another Mother**: That's public school.
> **Mother**: Oh, excuse me, public school. And I am very... and I have said probably because it's very much like a private school, I am very satisfied with -----. . . , one of the best elementary schools in D.C..
> **Focus Group Leader**: When you say it's like a private school, how is it like a private school?
> **Mother**: Well, because they are well-structured . . .--a lot of parent participation. . . . The academics are great. The children are well disciplined. An example, we went to ---Auditorium on Thursday. . . . her class was the best disciplined in the entire auditorium.[38]

Open classrooms and multiple grades seem to add to the discipline problems in D.C. public schools, at least in the view of some parents. Said one mother, in a focus group session:

> I have two boys. Both of them are in the first grade. . . . Last year they were fine because they had a closed classroom. This year, my youngest son, he's not doing too well. . . . The classroom is too big. Discipline is terrible. . . . I 've seen the teachers snatch the kids around there, they running all in the hallways and you can hear what's going on in that classroom all the way over there. I don't think the teachers are dedicated to their work. . . . And there's no after-school tutoring, nothing.[39]

A grandmother had much the same opinion:

> They was teaching ... two classes in one room. And it's very difficult. And the teacher told me... "I asked the principal, 'Don't put my [own] son in one of those classes

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[36] Focus group session, Washington, D.C., March 27, 1999, afternoon session.
[37] Focus group session, Washington, D.C., April 18, 1999.
[38] Focus group session, Washington, D.C., March 27, 1999, afternoon session.
[39] Focus group session, Washington, D.C., March 27, 1999, afternoon session.

where it's going to be two classes.'" Well, naturally, she's a teacher—she could do that. But I feel that they don't get a chance to progress to their full potential because . . . you got two classes going on in one room.[40]

Some parents felt the situation in public school had changed since the time they had been in school. In one focus group session, a mother said that when she had been in school "it worked out and a lot of those kids that went to [the public school], they succeeded." But another mother interjected: "That was back when you was going.... So now the times have changed." The first mother replied: "I know." The second mother then added: "The teachers are different, they're frustrated. They don't care. The children are more disrespectful. But the reason why they're disrespectful is because they don't understand."[41]

Quantitative data are consistent with these focus-group reports. The WSF scholarship program had a major impact on the daily life of students at school, if parental reports are accurate. Applicant families whose children went to public school were more likely to report that the following was a serious problem: students destroying property, tardiness, truancy, fighting, and cheating. For example, 55 percent of the parents with students in the public school control group thought fighting was a serious problem at their school, as compared to 25 percent of the private school parents (Table 8). Nearly 50 percent of public-school parents perceived tardiness to be a problem, versus just over 33 percent of the private-school parents. Nearly 40 percent of those with a student in public school, but just 17 percent of the private school parents, said destruction of property was a serious problem. Nearly 45 percent of public-school parents said truancy was a problem, as compared to less than 20 percent of the private-school parents. And finally, 33 percent of the public-school parents said cheating was a problem, as compared to 23 percent of private-school parents.

[40] Focus group session, Washington, D.C., April 10, 1999, morning session.
[41] Focus group session, Washington, D.C., April 18, 1999.

Nearly all of the parents of students in private school reported their school required uniforms, as compared to about 60 percent of the parents in the control group (Table 8). Similarly, almost all of the parents in the private school reported that certain kinds of clothing are forbidden, as compared to about 80 percent of the control group. On the other hand, sign-in sheets are slightly more common in public schools and hall passes are required with equal frequency in public and private schools.

Homework

Parents were also asked about the amount and difficulty of homework assignments. In this case, focus-group conversations and the written responses to questionnaires yielded slightly different results. According to focus-group participants, private schools assigned significantly more homework than public schools:

> Sometimes I look at my eight-year-old daughter and I say, you have more homework than your older siblings, your brothers and sister. Because those who go to ---- don't have much homework. . . . But my eight year old daughter, her teacher just piles her up with homework. . . . She's always student of the month. . . . Right now, I'm kind of afraid because when she gets out of that class, I don't know what the next teacher's going to be like.[42]

Another public school parent complained about the ease with which homework assignments could be accomplished:

> I think some of the homework ...is pretty easy. And I find myself having to supplement so much at home. . . . I think kids . . . would do more if you expect more. And if you allow them to get away with just this much work, then that's all they're going to do."[43]

One parent compared her public-school experiences in Washington, D.C. with those in her home country in Africa. In Washington,

> They're not given the books to take home with them. You know, they said they cannot give them the books, because some people either don't return the books or they sell the books. They sell the books to students or whatever. But, unfortunately, those few

[42] Focus group session, Washington D.C., March 27, 1999, afternoon session.
[43] Focus group session, Washington D.C., March 6, 1999.

> rotten apples are spoiling the whole barrel. . . . Sometimes I look at my kids and I say, don't you have any homework? And they say, yes, we do but we [finished it] in the class. And I say, well don't you have something to read? Because when I was in school, . . . we just read, read, read, read. . . . It wasn't like the system over here. . . . At home, you have to write essays. . . .You just write, write, write, write. . . . Not giving them books at school--that's something very, very upsetting.[44]

Still another parent reported a quite unique homework problem:

> **Mother**: My fourth-grade teacher, she has a homework folder that she sends. Whereas if you complete your assignments during the week--if you do all five days--at the end you get an A. Well, if there's no school Monday--just because the schools are closed Monday--then he does his homework Tuesday. Wednesday they have half a day. And then Thursday and Friday, he completes his assignments. Well, he won't get an A, because the school was closed on Monday, and they had a half day due to the school. So his grade at the end of the week is a C. And it's like, but there was no homework, and the schools weren't open.... Does that make sense to anybody?
> **Focus group leader**: But that only happened once didn't it?
> **Mother**: No that's their program. That's her scoring system.[45]

Given these complaints about homework assignments in public schools, it was surprising that private and public school parents did not report sharper differences in the length of time their children spent on homework assignments. As can be seen in Table 9, however, parents of private school students say their children spend just 9 minutes more on homework per day than parents of public-school students. The impact was somewhat larger for students in grades six to eight — about fifteen minutes per day. Private school parents also were more likely to report that the school has high academic expectations for their child, especially if their child is in grades one to five.

Students in private schools, particularly those in grades four and five, also said they had more homework. Private-school students in grades four and five claimed they had about forty-five more minutes of homework per day, and students in grades six through eight reported about eleven more minutes per day, than their public-school peers. However, older students in private schools were more likely than older public-school students to report that "class work was hard to

[44] Focus group session, Washington, D.C., March 27, 1999, afternoon session.
[45] Focus group session, Washington, D.C., April 10, 1999, morning session.

learn" – younger students in private school were no more likely to give this response than youngsters in public school.

In sum, both parents and students in private schools report more homework. The perceived differences between public and private schools are larger in reports from students than in the parental reports, But private-school students in grades six through eight report that class work is challenging for them.

School-Parent Communications

Reports on school-parent communications were quite consistent. In both focus groups and in written responses, private-school parents claimed to have more extensive contacts with their school. One public-school grandmother explained her lack of communication with the school in this way:

> I used to attend all of the PTA meetings. ... I'd go up to school and volunteer and all. But I live in public housing in the southwest. And I find that the principal up there... has a tendency to not take many of the parents in that area seriously.[46]

One parent complained not about the frequency of public-school contact but its content:

> My son . . . by him being premature, he has...alarming disability. . . . I went to the parent conference meeting on a regular basis and [the teacher] got to talking about my daughter, "Oh she's doing marvelous she's above average and she's doing greatly... but why is your son so dense?" I said, "Excuse me?" She said, "Why he act like that?" I said, "You know what? From now on, you don't have to talk to me about anything my child.... I will meet with the assistant or the principal."[47]

In response to the survey, parents of private school students also reported higher levels of communications with their school about their child (see Table 10). Although public and private school parents reported only minor differences in the frequency of parent open houses and parent/teacher conferences, a much higher percentage of parents of students in private schools reported:

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[46] Focus group session, Washington, D.C., March 6, 1999.
[47] Focus group session, Washington, D.C., March 6, 1999.

- that they are notified when their child is sent to the office the first time for disruptive behavior — 90 percent for private-school parents, 63 percent for the control group;
- that parents participate in instruction — 69 to 53 percent;
- that they receive notes about their child from the teacher — 94 to 77 percent;
- that parents receive a newsletter about what is going on in school — 91 to 69 percent;
- that they speak to other parents about school almost everyday — 20 to 10 percent.

These results cannot be attributed to initial parental characteristics. Remember, the two groups of parents, separated only by the selections of a lottery, were quite similar at baseline. Major differences in school-parent communications, therefore, may be attributed to the different relationship between home and school established by private schools.

Parental Involvement in Child's Education

Supporters of school choice claim that when parents choose a school, the family becomes more engaged in their child's education. Working together, schools and parents create a more effective educational environment for their children.[48] But choice critics argue that any observed differences in parental engagement with private schools is due to the selected nature of the families who choose private schools in the first place.

The results after one year provide little evidence that the WSF program increased family engagement in their children's education. Parents were asked how often they helped their child with homework, talked with their child, and accompanied their child to a variety of events, such as school activities, concerts, social gatherings, the library and so forth. In every case, public and private-school parents gave essentially the same answers (see Table 11).

Religious Practices

The WSF program affected the religious practices of younger students. Nearly two-thirds of the private-school students, but less than a third of the public-school students, said they attended religious services (Table 12). Among students in grades six through eight, those in

[48] Brandl, *Money and Good Intentions Are Not Enough.*

private school were also slightly more likely to report that they were attending religious services, but the difference is not statistically significant.

The finding that private school students were more likely to attend religious services was not surprising, since most of them attended religious schools, which, in all likelihood, require some form of religious instruction. Private-school students in general were no more likely than their public school counterparts to participate in religious activities outside of school. However, attending private school appears to have a positive effect on the participation of fourth and fifth grade students in religious activities outside of school, but a negative effect on sixth through eighth grade students.

The WSF program had no effect after one year on the religious practices of parents, however. Mothers of students in private schools were no more likely to attend religious services than mothers of public-school parents. On the other hand, parents were much more satisfied with the religious dimension of their child's schooling if the child attended a private school. Also, parents report that less than 1 percent of the students offered a scholarship were denied admission to a preferred school because of their religion.

Parental Satisfaction

Most studies of school choice have found that low-income parents who use vouchers to attend private schools are more satisfied with various aspects of their school than are parents of children in public school. Studies of school choice programs in Milwaukee, San Antonio, Indianapolis and Cleveland all reach essentially the same conclusion.[49]

Focus-group conversations in the District of Columbia tended to match the findings from these other evaluations. One mother compared her experience with public and private schools in these terms:

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[49] These results are summarized in Paul E. Peterson, "School Choice: A Report Card," in Peterson and Hassel, eds., *Learning from School Choice*, pp. 17-19.

> [Previously,] at the public school . . . they passed him, because [they have the attitude]. . .'I don't want to be bothered. Let's get him on to the next grade.' And [now] because he's in this private school, they're giving him the attention that he needs. . . . I had a parent-teacher conference yesterday and she was like, 'I understand and we're going to work with him reading, trying to get him into reading and writing more often'. . . .[50]

Not all parents, however, are unhappy with the public schools. Said one focus group parent, "I don't have a beef with far as my kids attending school 'cause they're doing good at [an elementary public school]. They're doing fine."[51] Another public-school parent explained how her child had started the school-year fairly well, but after switching schools, things have turned for the worse:

> He went to [an elementary public school] for five years.... and I always been at school. I think that helped a lot. 'Cause . . . I always had a good rapport with the teachers and the principal. I helped out with the tests and stuff. So I can say public school's been good to me.' But now this year, he goes to . . . .-- this was his first year after being in another school for five years--the first week was pretty rough . . . but then . . . he score the highest in his class on the Stanford 9. So, he's fitting in. But then there's two children in the class who needs to go to special ed. . . . It's distracting.[52]

Grading policies in public school were a frequent source of complaint. In the words of one mother:

> They were giving away grades. . . . When you're giving away grades it looks good for that moment. But down the road, it's going to hit you. . . . you can't get into a decent college or whatever. They just gave away grades. They kept quiet about it. . . . They just want to keep their jobs.[53]

One focus group session with public school parents turned to the question of teachers. Parents recognized that teacher quality varied enormously. One mother observed that "some are there just to get that paycheck. . . . And some of them are . . . really dedicated."[54] Another couple thought the teachers in public schools were satisfactory but the system as a whole was not:

> **Mother**: [In first grade], there was so many students they had to start up another classroom. So they had to wait until they brought another teacher on board. . . . My child was one of the kids that they transitioned into this new classroom. . . .Then when he got to second grade, he had a teacher that I think worked [for] a good week.
> **Father**: Two weeks

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[50] Focus group session, Washington, D.C., March 27, 1999, afternoon session.
[51] Focus group session, Washington, D.C., April 18, 1999.
[52] Focus group session, Washington D.C., April 18, 1999.
[53] Focus group session, Washington, D.C., March 6, 1999.
[54] Focus group session, Washington, D.C., March 27, 1999, afternoon session.

Mother: A good two weeks.
Father: They started school late [because of a court suit over inadequate school facilities]....
Mother: She was from New York and...
Father: After two weeks she quit. And they didn't have another teacher until . . . January.
Mother: I called [Superintendent] Beckton's office and everything.
Father: And what I couldn't understand. . . . It does not take a rocket scientist to say, we have a pool of teachers where we can pull teachers from to send to certain schools, if a teacher leaves.[55]

To move beyond anecdotal reports, the parent survey asked about satisfaction with the school the child attended. As can be seen in Table 13, the differences between the two groups of parents are quite dramatic. Private-school parents are more enthusiastic about their schools than the public-school parents who applied for a school voucher. Forty-six percent of the private school parents gave their school an "A", as compared to just 15 percent of the public-school parents.

Parents were also asked about specific dimensions of school life. On just about every dimension about which parents were questioned, private school-parents were more satisfied with their child's education. When asked about the academic program of the school, over 56 percent of the private-school parents in Washington said they were very satisfied, as compared to just 17 percent of the public-school parents. With respect to school safety, over 60 percent of the Washington private-school parents said they were very satisfied, while just 20 percent of the parents of students still in public school gave this response. Forty-seven percent of private-school parents, as compared to 19 percent of public-school parents, were very satisfied with parental involvement in the school. For class size, 49 percent of private-school parents claimed to be very satisfied, as compared to 13 percent of public-school parents. As Table 13 shows, similar results hold for virtually all other dimensions of satisfaction as well.

These differences may be due in part to the fact that those applying for a scholarship are particularly dissatisfied with public school; differences between private-school applicants and a

random sample of public-school parents may not be as sharp as the differences just presented. It is possible to examine the extent to which applicants from public schools differ from other public-school parents in Dayton, Ohio, because similar questions were asked of the two groups in that city. [56] If one assumes the pattern is the same in Washington as in Dayton, the adjusted results for Washington are as follows:

Evaluation of School Child Attends	Private-School Parents	All Public-School Parents (estimated)
% Giving School an "A":	46	31
% Very Satisfied with:		
Academic Program	56	24
School Safety	61	25
Parental Involvement	47	30
Class Size	49	15

Private school parents, it seems, are more enthusiastic about their schools than either public-school parents who have applied for vouchers or an estimated cross-section of parents in Washington.

Student Adjustment to Choice Schools

Adjusting to a new private school can be very difficult. Both focus-group conversations and student responses to the survey indicate adjustment problems, particularly among older students. Said one mother, in a focus group session:

[55] Focus group session, Washington, D.C., March 6, 1999.

[56] William G. Howell and Paul E. Peterson, "School Choice in Dayton: An Evaluation after One Year," Paper prepared for the Conference on Vouchers, Charters, and Public Education, Program on Education Policy and Governance, Kennedy School of Government, Harvard University, March 1999. The results for all public-school parents in Dayton, Ohio are taken from Anita D. Suda, *Education Reform in the Dayton Area: Public Attitudes and Opinions* (Washington, D.C.: Thomas B. Fordham Foundation, October 1998), pp. 26-28. Estimates for all public school parents are calculated in the following way: Difference between the satisfaction of all Dayton public-school parents and the satisfaction of Dayton voucher applicants is added to satisfaction levels reported by Washington voucher applicant. Since phrasing of questions posed to applicants in Dayton and Washington are identical, and the design of the voucher programs are similar, the estimate depends on the modest assumption that applicants to the two programs are similar, relative to all public-school parents.

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> We transitioned him . . . out of . . . public school. He could do better than what he's doing. . . . I was told the transitioning period for him since this is his first year. . . . And his grades kinds of fluctuated. He likes his new friends. He had to adjust to that. But now he's fine. He likes going to school.

The child's father added:

> It did get to be a bit much. Mostly, because the level of things that they were doing was pretty heavy for an eight year old.... when your starting to read books and do book reports, and doing multiplication, all those things can weigh heavily on an eight year old all at once.[57]

Another parent echoed these remarks:

> We left public school to go to private school. What was a straight A student is now a shocking C. That's a shock to a kid when it came. . . . It's sort of a wake up call. We have discovered his weak spots, really gotten to the bottom of some of his weak spots. And the teachers have been very helpful in helping to bring his level up to where they think it should.... They give him a lot of homework. They give him...constant work.[58]

Students in grades four through eight responded to a short questionnaire either prior to or immediately after taking the ITBS in reading and math. The responses to these questions provide an opportunity to estimate the extent to which voucher students found it difficult to adjust to their new schools. At least according to their survey responses, students in grades four and five do not seem to have serious adjustment problems. Responses by students in grades six through eight, however, suggested that the first year in a different type of school was somewhat difficult.

Perhaps the single most revealing question asked students to grade their school from A to F (Table 14). Younger students in private school were slightly more likely to give their school an "A" than those in the control group -- 59 percent as compared to 52 percent. But the older students in private school were decidedly less likely to give their school an "A." Only 8 percent of them did so, as compared to 48 percent of the control group. (By comparison, their parents were much more satisfied — 41 percent of the private school parents of older students gave the school an "A," as compared to just 18 percent of the control group.)

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[57] Focus group session, Washington, D.C., March 6, 1999.
[58] Focus group session, Washington, D.C., March 6, 1999.

Things look much the same when students were asked how they felt about going to school. Among the younger students, about half of both groups said they "like it a lot." But only 21 percent of the older students in private school gave the same response, as compared to 40 percent of the public-school students. Still another question evoked a similar response. When asked whether students are "proud to go to my school," 69 percent of the younger students in private school agreed, as compared to 44 percent of the control group. On the other hand, only 45 percent of the older students in the private schools said students were proud of their school, as compared to 74 percent of the older students in the control group. Younger students in private schools are much more likely to report that they get along well with their teachers -- the difference between private and public-school students is a sizeable 26 percentage points. But older students in private school are no more likely than their public school peers to say that they get along well with their teachers.

Finally, parental reports of suspension rates further suggest that older students faced unique problems adapting to their new schools. For younger children, the suspension rate was slightly (but not significantly) lower in the private schools — 5 percent as compared to 7 percent in the public schools. But among older students the suspension rate was higher in the private than the public sector by a significant margin — 20 percent, as compared to 3 percent.

Maria Montessori, the founder of the Montessori schools, would probably not have found our results surprising. In her view, a child who is age six to twelve (first to sixth grade) "can submit himself to the *regime* of mental work demanded by the school…[and] is patient enough to listen and learn."[59] These characteristics help younger children adjust fairly easily to changes in their educational environment. Montesorri, however, claims that social concerns become more important when children enter junior high, and characterizes the temperament of students in grades six to nine as "less calm and easy than the preceding [grades]…[with] signs of indiscipline

and rebellion."[60] Older students probably find it more difficult to adapt to a new set of expectations that a new educational environment and new social situation might impose on them. It remains unclear whether the adjustment problem for middle-school students is short term or longer term.

Continuing in the Program

All else equal, it is generally thought that students do better the longer they remain in the same school. Does school choice destabilize a child's educational experience? In his evaluation of the Milwaukee school choice program, John Witte expressed concern about the high rate of attrition from private schools.[61] And a number of choice critics have raised questions about the readiness of private schools to expel students who do not "fit in."[62] But other studies have found that voucher students from low-income families are more likely to remain in the same school throughout the school year and from one year to the next.[63]

The WSF program provides an opportunity to examine this question with data from a randomized experiment. In general, the findings support the claim that school choice does not disrupt the education of low-income students.

Changing Schools During the School Year

A very high percentage of all students in the study claimed to have remained in the same school the entire year, much higher than is typical of inner-city minority children in general. This may be due to the fact that the families who applied for scholarships were strongly committed to their children's education. No differences in school mobility rates are apparent between the two

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[59] Maria Montessori, *The Absorbent Mind*, New York: Holt, Rinehart and Winston, 1967, p. 20.
[60] Montessori, *The Absorbent Mind*, p. 21. For a recent analysis of Montessori's claims regarding the various stages of learning, see Phyllis Wallbank, "Newman, Montessori, and Lonergan on Education," The Lonergan Institute webpage, http://www.lonergan.org.
[61] John F. Witte, "First Year Report: Milwaukee Parental Choice Program," University of Wisconsin—Madison, Department of Political Science and Robert M. Lafayette Institute of Public Affairs, November 1991.
[62] Murphy, Nelson, and Rosenberg, *The Cleveland Voucher Program: Who Chooses? Who Gets Chosen? Who Pays??*

groups. As can be seen in Table 15, 90 percent or more of both the private and public-school parents reported that their child had remained in the same school throughout the school year.

Those who did change schools were asked why. (Parents could give multiple reasons, so one should not add the percentages of reasons together). Among both groups, the reasons given were fairly evenly distributed across the variety of alternatives provided in the questionnaire. About 2 percent of both groups said they switched schools due to the quality of education their child was receiving. Four percent of those with students in public school said the change in school was necessitated by a family move, whereas less than one percent of private school parents gave this as a reason. As Table 15 shows, a variety of other reasons for changing schools were given by the remaining parents – it is worth noting that less than one percent of the scholarship recipients cited school suspension or expulsion as a reason for their child changing schools.

Plans for Next Year

Parents of students in private school are just as likely as public-school parents to say they will attend the same school in the following year, barring graduation requirements. Over 80 percent of the families in private school said they expect their child either to graduate or to be back at the same school, as compared to less than 74 percent of the control group (Table 16).

Again, if parents said they did not expect their child to attend the same school next year, they were asked to give reasons. (And again, parents could give multiple reasons, so one should not add the percentages of reasons together). For 6 percent of all the private-school parents, the quality of the school was considered to be unacceptable; 15 percent of the public-school parents gave this response (Table 16). Another 8 percent of the public school parents said that the family was planning to move away from the school, as compared to only one percent of the private-school parents. There are several plausible explanations for this difference: families with a child

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[63] Jay P. Greene, William G. Howell, and Paul E. Peterson, "Lessons from the Cleveland Scholarship Program," in Peterson and Hassel, eds., *Learning from School Choice*, pp. 376-80.

in a private school may make a special effort not to move so that their child may remain in the same school; families in public schools may be more likely to move for the express purpose of gaining access to a better school for their child; or private and public-school families may change residence at the same rate, but unlike their public-school counterparts, private school families need not change schools with every move.

Private-school parents mentioned a number of other reasons for changing schools next year. Four percent of the private-school parents said their child had been admitted to another private school they preferred, 3 percent said the school was in an inconvenient location, 2 percent said the school was too expensive, another 2 percent said they preferred to have all their children at the same school, and one percent said that their child had been admitted to a preferred public school. None said their school had asked them "not to return."

Test Scores

Several studies have compared the test performance of students in public and private schools, and they usually find that students in private schools outperform their public-school peers. However, even the most careful of these studies, which adjust for observed family background characteristics, cannot be sure that they have taken into account an intangible factor — the willingness of a family to pay for their child's tuition, and all that this implies about the importance they place on education. As a result, it remains unclear whether the findings from these studies describe actual differences between public and private schools or simply differences in the kinds of students and families attending them.[64] In the jargon of the research community,

[64] Major studies finding positive educational benefits from attending private schools include James S. Coleman, Thomas Hoffer, and Sally Kilgore, *High School Achievement* (New York: Basic Books, 1982); John E. Chubb and Terry M. Moe, *Politics, Markets, and America's Schools* (Washington: Brookings 1990); Derek Neal, "The Effects of Catholic Secondary Schooling on Educational Achievement," (University of Chicago, Harris School of Public Policy and National Bureau for Economic Research, 1996). Critiques of these studies have been prepared by Arthur S. Goldberger and Glen G. Cain, "The Causal Analysis of Cognitive Outcomes in the Coleman, Hoffer, and Kilgore Report," *Sociology of Education*, vol. 55 (April-July 1982), pp. 103-22; Douglas J. Wilms, "Catholic School Effects on Academic Achievement: New Evidence from the High School and Beyond Follow-up Study," *Sociology of Education*, vol. 58 (1985), pp. 98-114.

this is called the self-selection problem, the problem that arises when a population differentiates itself by freely selecting a particular situation, in this case, private school.

Until recently, studies of voucher programs have not randomly assigned students to treatment and control conditions, and therefore have not overcome the possible selection problems. Privately funded programs in Indianapolis, San Antonio, and Milwaukee admitted students on a first-come, first-served basis. And in the state-funded program in Cleveland, though scholarship winners were initially selected by means of a lottery, eventually all applicants were offered a scholarship, thereby precluding the conduct of a randomized experiment. The public Milwaukee program did award vouchers by a lottery, but data collection was incomplete.[65] The highest quality data collected thus far come from the New York City and Dayton voucher programs, which were set up as randomized field trials. These evaluations found, after one year, positive effects of attending a private school.[66] The WSF voucher program provides another opportunity to estimate the impact of attending a private school on student test scores, in this case for grades two through eight.

To estimate more precisely the effects of attending a Washington private school on student test scores, baseline test scores in both reading and math were included in all equations. Results differ depending on whether the student was African American or some other ethnic group. Almost all non-African Americans were Hispanic; other ethnic groups constituted less than 2 percent of evaluation participants.

No significant differences between the test score performance of non-African American students in private schools and the performance of students in the control group were observed after one year in either reading or math, perhaps because only 79 non-African American students participated in the evaluation.

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[65] Results from these evaluations are reported in Paul E. Peterson and Bryan C. Hassel, eds., *Learning from School Choice* (Brookings, 1998).

For African Americans, the results vary, depending on whether students were in grades two through five or grades six through eight. Two thirds of the students participating in the evaluation were in the lower grades, one third in the higher grades.

Among the younger population, private-school students outperformed their public-school peers (Table 17). In math, the African American students in private schools scored 7 national percentile points higher than their counterparts in public schools; in reading they scored two points higher. The math result is statistically significant; the reading result is not.[67]

The results for older students are quite different (Table 17). The math scores of private-school students in grades six through eight are 2 percentile points higher than the scores of students in public schools; this difference is not statistically significant. Reading scores of the older students in private schools, however, trailed those of public-school students by 8 percentile points, a statistically significant effect. Apparently, older students, at least in their first year, find it more difficult to adjust to a private school climate. As students indicated in their responses to survey items, adjustment problems were fewer for younger than older students. It remains to be seen whether and when students who move from public to private schools in the middle years of their schooling benefit in the long run from a private school education.

Conclusions

It is too soon to ascertain the long-term impact of the voucher program sponsored by the Washington Scholarship Fund. Initial results, however, indicate that the educational climate in private schools is superior to that in public schools, and that parents with students in private schools are much more satisfied with their child's school. Home-school communications are more extensive in the private sector, and students are expected to do more homework. After six

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[66] Peterson, Myers, Howell, and Mayer, 1998; Howell and Peterson, 2000.

[67] Scores of students who either gained two standard deviations or lost one and one-half standard deviations between the baseline test and the first-year follow up were deleted from the analysis, because these changes were so dramatic they could well have been produced by peculiar test-taking conditions. When scores for these students were imputed, similar results were obtained.

to seven months in their first year after changing schools, African American students in grades two through five attending private schools outperformed their peers in math by 7 percentile points, a statistically significant difference. They also scored 3 percentile points higher in reading, but this difference is not large enough to be certain that the finding did not occur by chance.

However, the evaluation also indicates that students in their middle years – grades six through eight – have found it difficult to adjust when moving from a public to a private school. Since the data for the median student was collected in March of the first year of transition, it is not yet clear whether these adjustment problems will continue or dissipate. But these older students, in contrast to students in lower grades, reported less enthusiasm for their new school, were more likely to be suspended, and scored lower on the reading test than their public-school peers. However, no differences in the older students' math performance were observed.

It premature to draw strong conclusions from these findings, but the results do suggest that vouchers for low-income families may be particularly effective, initially at least, if concentrated on students in lower grades. These students have fewer problems adjusting to private school and score higher in math after six or seven months in a private school setting.

Table 1 – Educational Characteristics: Scholarship Takers and Decliners, Washington, DC

	Takers	Decliners	Difference
	(1)	(2)	(3)
Baseline Test Scores:			
Reading	32.5	28.2	4.3**
Grades 1-5	32.4	30.0	2.4
Grades 6-8	32.9	23.8	9.2**
Math	24.8	22.8	2.0
Grades 1-5	24.1	23.5	0.5
Grades 6-8	27.2	20.9	6.3**
Percent of children facing the following educational challenges:[1]			
Learning disability	9.2	13.4	-4.2
Does not understand English well	5.4	3.5	1.8
Physical Disability	3.9	2.3	1.6
(N)	81-410	84-303	

Figures may not sum due to rounding. Percentages and actual number of observations reported for parents with children in grades 1-8 during the 1998-99 school year. * = difference significant at $p < .1$, ** = significant at $p < .05$, *** = significant at $p < .01$; two-tailed test conducted.

[1] According to the 1999 survey.

Table 2 -- Demographic Characteristics
Scholarship Takers and Decliners, Washington, DC

	Takers	Decliners	Difference
	(1)	(2)	(3)
Family Income: [1]			
Less than $5,000	11.2	17.3	-6.1*
$5,000-$10,999	20.4	25.3	-4.9
$11,000-$24,999	46.9	36.4	10.5**
$25,000-$39,999	18.4	17.9	0.5
$40,000 or more	3.1	3.0	-0.0
Total	100.0	100.0	
Average family income	$17,774	$15,781	$1,993*
Families receiving following forms of government assistance			
Welfare	34.6	41.6	-7.0*
Social Security	13.3	14.3	-1.1
Mother's Education (highest achieved) [2]			
No high school diploma	5.0	8.2	-3.2*
High school diploma or GED	28.4	31.0	-2.5
Less than 2 yrs post secondary	37.4	35.1	2.4
2+ yrs of trade, vocational or bus. school	7.6	10.1	-2.6
2 yrs or more college	13.0	11.8	1.3
College graduate (4 or 5 yr program)	7.6	3.0	4.6***
Graduate degree	0.9	0.8	0.1
Total	100.0	100.0	
Average Number of Years of Education	12.9	12.6	0.3***
Mother's Employment Status			
Full time	56.8	55.6	1.1
Part time	15.3	10.5	4.8**
Looking for work	22.1	31.6	-9.5***
Not looking	5.8	2.3	3.6**
Total	100.0	100.0	
Child currently lives with . . . [3]			
Mother and father	12.9	12.2	0.7
Mother only	76.8	75.6	1.2
Father only	1.3	2.4	-1.2
Grandparent	3.4	3.7	-0.3
Other	5.7	6.1	-0.4
Total	100.0	100.0	

Table 2 Continued

	Takers	Decliners	Difference
	(1)	(2)	(3)
Percent of Mothers at Current Residence for 2 years or less	33.7	37.4	-3.7
Mother's Ethnicity			
Black	95.1	95.9	-0.7
White	0.2	0.6	-0.3
Hispanic	3.4	1.9	1.5
Other	1.2	1.7	-0.4
Total	100.0	100.0	
Mother's Religious Affiliation			
Baptist	55.4	64.5	-9.1**
Other Protestant	18.9	9.5	9.3***
Catholic	13.5	15.0	-1.5
Other Religion	5.9	6.4	-0.5
No Religion	6.4	4.6	1.7
Total	100.0	100.0	
Mother Currently Married	13.7	10.8	3.0
Average Number of Children in House	3.0	2.8	0.1
Percentage of Mothers US Born	95.7	94.6	1.2
(N)	279-427	162-372	

Figures may not sum due to rounding. Percentages and actual number of observations reported for parents with children in grades 1-8 during the 1998-99 school year. * = difference significant at $p < .1$, ** = significant at $p < .05$, *** = significant at $p < .01$; two-tailed test conducted. All figures are from survey at baseline (1998) unless otherwise indicated.

[1] Figures are estimated family income based on informaiton provided in 1999 survey. Distribution of responses by taker vs. decliner generates a Chi-Squared sum of 7.4, not statistically significant at $p < .10$ with 4 d.f..

[2] Distribution of responses by taker vs. decliner generates a Chi-Squared sum of 15.7, not statistically significant at $p < .10$ with 6 d.f..

[3] According to 1999 survey.

Table 3 – Reasons School Selected, Washington, DC

	Effect of Scholarship Offer			Effect of Going Private		
	Offer	No Offer	Impact	Private	Public	Impact
	(1)	(2)	(3)	(4)	(5)	(6)
Cited as one of three most important reasons why parent chose school:						
Academic quality	64.6	59.2	5.4*	67.5	58.5	9.0*
Teacher quality	33.3	41.0	-7.6***	29.0	42.6	-13.6***
Discipline	30.4	17.8	12.6***	37.5	15.2	22.3***
School safety	30.3	35.2	-4.9*	27.5	36.2	-8.7*
Religious instruction	28.7	12.4	16.3***	38.1	9.0	29.1***
Class size	26.9	19.0	7.8***	31.4	17.3	14.1***
Special features of school	24.0	25.0	-1.0	23.4	25.1	-1.7
Convenient location	21.4	16.7	4.7**	24.1	15.6	8.5**
What is taught in school	21.0	19.4	1.7	22.0	18.9	3.1
Extra-curricular activities	9.3	6.3	2.9	10.9	5.8	5.1*
Neighborhood public school	7.5	17.9	-10.4***	1.5	20.3	-18.8***
Only choice available	5.2	17.7	-12.4***	-1.8	20.3	-22.1***
School facilities	5.0	3.1	1.8	6.0	2.8	3.2
Sports program	1.6	3.5	-1.9**	0.5	3.9	-3.4**
Child's friends	1.3	0.6	0.7	1.7	0.5	1.2
(N)	591	580				1168

Percentages weighted. N = actual number of observations. Grades 1-8. * = difference significant at $p < .1$, ** = significant at $p < .05$, *** = significant at $p < .01$; two-tailed tests conducted.

Table 4 – Attendance at Preferred School, Washington, DC

	Effect of Scholarship Offer			Effect of Going Private		
	Offer	No Offer	Impact	Private	Public	Impact
	(1)	(2)	(3)	(4)	(5)	(6)
Percent who gained admission to a school the family wanted the child to attend:	70.3	52.3	18.0***	80.6	48.3	32.3***
Reasons why child did not gain admission to preferred school:[1]						
Cost of school	14.3	29.3	-15.0***	5.6	32.8	-27.2***
Transportation problems	5.1	3.5	1.6	6.0	3.2	2.8
No space available	4.6	3.4	1.2	5.2	3.1	2.1
Applied too late	4.2	3.2	1.0	4.8	3.0	1.8
Child turned away	2.7	3.4	-0.7	2.4	3.6	-1.2
School in inconvenient location	1.7	3.7	-2.0**	0.5	4.1	-3.6**
Communication problems	1.4	0.7	0.7	1.8	0.6	1.2
Moved away from the school	0.8	0.3	0.5	1.1	0.2	0.9
Child did not pass admissions test	0.7	0.8	-0.0	0.8	0.8	-0.0
Family not a member of church affiliated with school	0.7	1.1	-0.4	0.5	1.2	-0.7
(N)	593	580				1168

Figures may not sum due to rounding and multiple responses allowed. Percentages weighted. N = actual number of observations Grades 1-8. * = difference significant at $p < .1$, ** = significant at $p < .05$, *** = significant at $p < .01$; two-tailed tests conducted

Table 5 – School Facilities and Programs, Washington, DC

	Effect of Scholarship Offer			Effect of Going Private		
	Offer	No Offer	Impact	Private	Public	Impact
	(1)	(2)	(3)	(4)	(5)	(6)
Average school size	282.8	408.4	-125.6***	216.8	438.1	-221.3***
Average class size	19.3	21.3	-2.0***	18.1	21.8	-3.7***
Percent of children who have the following resources at their school						
Nurse's office	70.0	89.7	-19.7***	57.2	94.0	-36.8***
Cafeteria	76.5	93.0	-16.5***	66.6	96.8	-30.2***
Special programs for non-English speakers	43.0	55.8	-12.8***	34.5	58.3	-23.8***
Special education programs	70.8	76.6	-5.8*	66.5	78.0	-11.5**
Computer lab	83.9	88.1	-4.3**	81.4	88.9	-7.5**
Library	91.9	95.5	-3.5**	89.9	96.2	-6.3**
Child counselors	86.8	88.7	-1.9	85.5	89.0	-3.5
Arts program	78.8	80.4	-1.5	78.0	80.6	-2.6
Gym	76.4	76.8	-0.4	76.2	76.7	-0.5
Music program	84.1	84.1	-0.0	84.1	84.3	-0.2
After-school program	85.7	80.6	5.1**	88.7	79.3	9.4**
Programs for advanced learners	60.6	54.2	6.4*	65.2	52.4	12.8*
Individual tutors	69.0	58.7	10.3***	75.1	56.2	18.9***
(N)	297-563	345-560				639-1107

Figures may not sum due to rounding. Percentages weighted. N = actual number of observations. Grades 1-8. * = difference significant at p < .1, ** = significant at p < .05, *** = significant at p < .01; two-tailed tests conducted.

Table 6 – Ethnic Considerations, Washington, DC

	Effect of Scholarship Offer			Effect of Going Private		
	Offer	No Offer	Impact	Private	Public	Impact
	(1)	(2)	(3)	(4)	(5)	(6)
Percent of classmates that are minority						
Less than 50 percent	20.5	20.1	0.4	20.8	19.9	0.9
About 50 percent	12.3	14.9	-2.6	10.9	15.6	-4.7
More than 50 percent	27.7	25.8	1.9	28.9	25.3	3.6
100 percent	39.5	39.2	0.3	39.5	39.2	0.3
Total	100.0	100.0		100.0	100.0	
Percent of classmates that are the same race as student						
Less than 50 percent	7.6	13.1	-5.5***	4.6	14.4	-9.8***
About 50 percent	11.7	15.2	-3.5*	10.0	15.6	-5.6
More than 50 percent	40.4	40.8	-0.4	40.1	41.2	-1.1
100 percent	40.2	30.9	9.3***	45.4	28.9	16.5***
Total	100.0	100.0		100.0	100.0	
Percent claiming that racial conflict is a serious problem at child's school [2]	16.7	14.0	2.7	18.2	13.5	4.7
(N)	350-571	339-568				687-1136

Figures may not sum due to rounding. Percentages weighted. N = actual number of observations. Grades 1-8. * = difference is significant at p < .1, ** = significant at p < .05, *** = significant at p < .01; two-tailed tests conducted.

Table 7 – Special Needs, Washington, DC

	Scholarship Offer			School		
	Offer	No Offer	Impact	Private	Public	Impact
	(1)	(2)	(3)	(4)	(5)	(6)
Percent of parents reporting child has:						
A learning disability	10.4	10.8	NA	10.5	10.5	NA
Difficulty understanding English well	6.3	7.8	NA	5.5	7.9	NA
A physical disability	3.6	4.1	NA	3.5	3.8	NA
(N)	565-581	550-568				1112-1146
Percent who say school is doing "very well" in meeting student's special need:						
A learning disability	37.8	25.2	12.6**	48.6	23.1	25.5**
Difficulty understanding English well	59.2	42.5	16.7**	66.9	39.1	27.8**
A physical disability	31.9	31.8	0.1	32.3	31.2	1.1
(N)	58-111	66-107				122-216

Figures may not sum due to rounding. Percentages weighted. N = actual number of observations. Grades 1-8. * = difference significant at $p < .1$, ** = significant at $p < .05$, *** = significant at $p < .01$; two-tailed tests conducted.

Table 8 – School Climate, Washington, DC

	Effect of Scholarship Offer			Effect of Going Private		
	Offer	No Offer	Impact	Private	Public	Impact
	(1)	(2)	(3)	(4)	(5)	(6)
Parents who believe the following problems at school are serious:						
Tardiness	39.0	47.4	-8.4***	34.4	49.0	-14.6***
Fighting	34.5	51.2	-16.7***	25.2	54.6	-29.4***
Truancy	26.6	41.3	-14.7***	18.4	44.3	-25.9***
Cheating	25.8	31.8	-6.0**	22.6	32.9	-10.3**
Destruction of property	23.5	34.9	-11.4***	17.3	37.2	-19.9***
Parents reporting the following rules at their child's school:						
Dress Code	91.8	82.7	9.1***	96.5	80.8	15.7***
Sign In	88.3	91.5	-3.1*	86.6	92.1	-5.5*
Uniforms	86.5	65.7	20.8***	98.1	61.3	36.8***
Hall Passes	81.8	82.8	-1.0	81.1	82.9	-1.8
(N)	478-579	489-569				965-1142

Figures may not sum due to rounding. Percentages weighted. N = actual number of observations.Grades 1-8. * = difference significant at $p < .1$, ** = significant at $p < .05$, *** = significant at $p < .01$; two-tailed tests conducted.

[1] Percentages are in terms of the total population.
[2] Respondents who said that their child's school contains only children of a single race excluded.

Table 9 – School Expectations and Homework, Washington, DC

	Effect of Scholarship Offer			Effect of Going Private		
	Offer	No Offer	Impact	Private	Public	Impact
	(1)	(2)	(3)	(4)	(5)	(6)
PARENTAL REPORTS						
Hours of homework each day:						
All students	1.25	1.17	0.08**	1.30	1.15	0.15**
Students grades 1-5	1.19	1.13	0.06*	1.23	1.11	0.12*
Students grades 6-8	1.40	1.27	0.13*	1.48	1.23	0.25*
Percent strongly agree that child's school has high academic expectations:						
All students	35.8	25.5	10.3***	41.7	23.4	18.3***
Students grades 1-5	35.9	23.7	12.2***	42.5	21.4	21.1***
Students grades 6-8	35.6	30.0	5.7	39.2	28.6	10.6
Difficulty of homework:						
Too easy	7.9	14.6	-6.7***	4.2	15.9	-11.7***
Appropriate	88.9	79.5	9.4***	94.0	77.8	16.2***
Too difficult	3.2	5.9	-2.7*	1.8	6.3	-4.5**
Total	100.0	100.0		100.0	100.0	
(N)	575-587	561-576				1136-1160
STUDENT REPORTS						
Average number of hours of homework assigned each day:						
All students	1.17	0.97	0.21***	1.31	0.90	0.41***
Students grades 4-5	*1.04*	*0.63*	*0.41****	*1.24*	*0.51*	*0.73****
Students grades 6-8	*1.30*	*1.21*	*0.09*	*1.37*	*1.18*	*0.19*
Percent of students who agree w/ following:						
"I would read much better if I had more help"						
All students	34.9	32.4	2.4	36.6	31.7	4.9
Students grades 4-5	37.8	38.8	-1.0	37.3	39.1	-1.8
Students grades 6-8	32.3	27.6	4.7	36.2	26.0	10.2
"Class work was hard to learn"						
All students	29.0	21.7	7.4*	33.7	19.4	14.3*
Students grades 4-5	29.7	26.5	3.2	32.2	25.7	5.5
Students grades 6-8	28.4	17.9	10.5**	37.2	14.2	23.0**
"I had trouble keeping up with the homework"						
All students	27.2	25.5	1.7	28.2	24.9	3.3
Students grades 4-5	28.7	26.3	2.3	29.8	25.7	4.1
Students grades 6-8	25.9	24.8	1.1	26.9	24.5	2.4
(N)	234-250	258-269				492-517

Figures may not sum due to rounding. Percentages weighted. N = actual number of observations. Parent reports for Grades 1-8. Student reports for Grades 4-8. * = difference significant at $p < .1$, ** = significant at $p < .05$, *** = significant at $p < .01$; two-tailed test conducted. Results in italics are significantly different between the student cohorts at $p < .05$ using a two-tailed T-test for differences in means.

Table 10 – School-Parent Communications, Washington, DC

	Effect of Scholarship Offer			Effect of Going Private		
	Offer	No Offer	Impact	Private	Public	Impact
	(1)	(2)	(3)	(4)	(5)	(6)
Percent for whom following practices exist at child's school:						
Parent open-houses held at school	94.9	91.8	3.1**	96.4	91.5	4.9*
Regular parent/teacher conferences held	93.6	89.4	4.2**	95.8	88.8	7.0**
Parents receive notes from teachers	88.3	79.2	9.1***	93.5	77.3	16.2***
Parents informed of midterm progress	85.8	76.4	9.4***	91.2	74.5	16.7***
Parents receive newsletter about school	83.6	71.3	12.3***	90.5	68.9	21.6***
Parents notified when child sent to office for first time because of disruptive behavior	81.2	66.1	15.0***	89.8	63.0	26.8***
Parents participate in instruction	63.4	54.5	8.9***	68.8	52.5	16.3***
Parents speak to classes about their jobs	35.8	31.9	3.9	38.1	30.9	7.2
Frequency discuss school matters with other parents:						
Seldom or never	35.7	33.4	2.3	36.9	33.1	3.8
Once or twice a month	31.2	37.2	-5.9**	27.9	38.5	-10.6**
Once or twice a week	16.6	18.3	-1.6	15.6	18.7	-3.1
Almost everyday	16.4	11.2	5.2***	19.5	9.6	9.9***
Total [1]	100.0	100.0		100.0	100.0	
Average number of parent-teacher meetings attended in the past year	2.5	2.6	-0.1*	2.4	2.6	-0.2*
Hours volunteered/month	1.5	1.4	0.1	1.5	1.4	0.1
Percent part of PTA/parent organization	38.3	40.8	-2.5	36.8	41.4	-4.6
(N)	564-587	551-574				1118-1157

Figures may not sum due to rounding. Percentages weighted. N = actual number of observations. Grades 1-8. * = difference significant at $p < .1$, ** = significant at $p < .05$, *** = significant at $p < .01$; two-tailed tests conducted.

[1] Distribution of responses is different between those offered and not offered a scholarship, based on a chi-squared sum of 10.4, statistically significant at $p < .05$ with three d.f.

Table 11 -- Parental Involvement with Child's Education, Washington, DC

	Effect of Scholarship Offer			Effect of Going Private		
	Offer	No Offer	Impact	Private	Public	Impact
	(1)	(2)	(3)	(4)	(5)	(6)
Percent of parents who frequently participate in the following activities with their child(ren): [1]						
Discuss experiences at school	74.0	74.2	-0.2	73.9	74.4	-0.5
Work on homework	62.6	65.6	-3.0	60.7	66.7	-6.0
Helped with math/reading not related to homework	51.7	53.3	-1.6	50.6	54.0	-3.4
Worked on a school project	34.7	31.7	3.0	26.3	31.3	5.0
Attended school activities w/ child	25.5	24.6	0.9	26.1	24.4	1.7
(N)	570-584	559-572				1129-1153

Figures may not sum due to rounding. Percentages weighted. N = actual number of observations. Grades 1-8. * = difference significant at $p < .1$, ** = significant at $p < .05$, *** = significant at $p < .01$; two-tailed tests conducted.

[1] "Frequently" was operationally defined as 6 or more times per month.

Table 12 – Religious Considerations, Washington, DC

	Effect of Scholarship Offer			Effect of Going Private		
	Offer	No Offer	Impact	Private	Public	Impact
	(1)	(2)	(3)	(4)	(5)	(6)
Percent listing religious instruction as one of three most imp. factors in choice of school	28.7	12.4	16.3***	38.1	9.0	29.1***
Percent who prefer that child attend a religious school	74.8	67.3	7.5***	79.1	65.4	13.7***
Among those who prefer that child attend a religious school, most important reason why:						
Greater discipline	17.6	11.2	6.4**	20.2	9.9	10.3**
Daily religious instruction	23.6	26.8	-3.2	22.3	27.1	-4.8
Higher academic standards	49.7	58.4	-8.7**	46.0	60.7	-14.78**
School safety	2.1	0.9	1.3	2.7	0.6	2.1
Other reason	7.0	2.7	4.3***	8.8	1.7	7.1**
Total	100.0	100.0		100.0	100.0	
Percent of children denied admission to a preferred school for religious reasons	0.7	1.1	-0.4	0.5	1.2	-0.7
Frequency of mother's attendance at religious services: [1]						
More than once a week	24.1	25.6	-1.5	23.6	25.4	-1.8
Once a week	38.7	39.9	-1.2	37.8	40.4	-2.6
Once a month	23.4	21.1	2.4	24.7	20.7	4.0
Only on major holidays	6.9	8.8	-1.9	5.7	9.3	-3.6
Never	6.9	4.7	2.2	8.1	4.2	3.9
Total	100.0	100.0		100.0	100.0	
Percent of parents satisfied with the religious dimension of their child's school	38.8	15.0	23.8***	52.0	9.3	42.7***
(N)	350-591	314-580				661-1171
Percent of students who attended religious services in the past year:						
All Students	55.3	43.9	11.4**	62.8	40.2	22.6***
Students Grades 4-5	*56.1*	*35.6*	*20.5****	*66.3*	*30.0*	*36.3****
Students Grades 6-8	*54.6*	*49.6*	*5.0*	*58.6*	*47.7*	*10.9*
Percent of students who receive religious instruction outside of school:						
All students:	23.3	23.2	0.1	23.3	23.2	0.1
Students Grades 4-5	*25.5*	*17.2*	*8.3*	*29.3*	*14.9*	*14.4*
Students Grades 6-8	*21.5*	*27.2*	*-5.7*	*16.9*	*29.2*	*-12.3*
(N)	97-232	102-246				199-478

Figures may not sum due to rounding. Percentages weighted. N = actual number of observations. Parental reports for children in grades 1-8 and student responses for grades 4-8. * = difference significant at $p < .1$, ** = significant at $p < .05$, *** = significant at $p < .01$; two-tailed tests conducted. Italics signify that impacts were significantly different between the two student cohorts at $p < .10$ based on a two-tailed T-Test for difference of means.

[1] Distribution of responses is significantly different between those offered and those not offered a scholarship at $p < .10$ based on a Chi-Squared sum of 9.1 with 4 d.f.

Table 13 – Parental Satisfaction with School, Washington, DC

	Effect of Scholarship Offer			Effect of Going Private		
	Offer	No Offer	Impact	Private	Public	Impact
	(1)	(2)	(3)	(4)	(5)	(6)
Percent of parents 'very satisfied' with:						
Location	53.7	42.4	11.3***	60.3	39.5	20.8***
Safety	47.5	25.5	22.0***	60.4	20.2	40.2***
Teacher-Parent Relations	46.5	32.2	14.3***	55.2	28.6	26.6***
Teacher Skills	45.4	26.7	18.7***	56.5	22.2	34.3***
School Discipline	43.5	23.5	20.0***	55.5	18.6	36.9***
Academic Program	43.9	22.3	21.5***	56.2	17.1	39.1***
What is Taught	44.3	24.3	20.0***	56.3	19.4	36.9***
Student respect for Teachers	42.0	29.0	13.0***	49.5	25.8	23.7***
Teacher respect for students	42.3	28.2	14.1***	50.7	24.7	26.0***
Moral Values	42.1	24.7	17.4***	52.1	20.4	31.7***
Clarity of school goals	40.3	22.7	17.6***	50.8	18.3	32.5***
Teamwork among school staff	39.2	22.4	16.9***	49.3	18.3	31.0***
Freedom to observe religious traditions	38.8	15.0	23.8***	52.0	9.3	42.7***
Parental Involvement	37.6	22.4	15.2***	46.6	18.8	27.8***
Class Size	37.0	17.9	19.1***	48.5	12.9	35.6***
School Facility	28.6	18.6	10.0***	34.6	15.9	18.7***
Overall Grade parent give school:[1]						
A	35.9	18.4	17.4***	45.8	14.6	31.2***
B	42.7	39.0	3.7	44.9	38.0	6.9
C	16.2	28.0	-11.8***	9.5	30.8	-21.3***
D	3.8	10.9	-7.1***	0.2	12.5	-12.7***
F	1.3	3.6	-2.3**	0.0	4.2	-4.2**
Total	100.0	100.0		100.0	100.0	
Average grade parents give school	B	B-		B+	C+	
(N)	551-582	520-563				1068-1142

Figures may not sum due to rounding. Percentages weighted. N = actual number of observations.Grades 1-8. * = difference significant at p < .1, ** = significant at p < .05, *** = significant at p < .01, two-tailed tests conducted.

[1] Distribution of responses between those offered and not offered a scholarship is significantly different at p < .01 based on a Chi-Squared sum of 76.4 with 4 d.f.

Table 14 – Student Adjustment and Satisfaction, Washington, DC

	Effect of Scholarship Offer			Effect of Going Private		
	Offer	No Offer	Impact	Private	Public	Impact
	(1)	(2)	(3)	(4)	(5)	(6)
PARENTAL REPORTS						
Percent of students suspended during the year for disciplinary reasons:						
All students	7.9	6.3	1.6	9.1	5.6	3.5
Students grades 1-5	5.3	6.5	-1.2	4.8	6.5	-1.7
Students grades 6-8	14.5	5.9	8.6***	20.4	2.8	17.6***
(N)	155-584	164-563				318-1144
STUDENT REPORTS						
I like my school a lot:						
All students	38.8	42.7	-3.9	36.2	43.8	-7.6
Students grades 4-5	50.2	49.7	0.6	50.5	49.5	1.0
Students grades 6-8	28.3	37.1	-8.8	21.1	40.2	-19.1
Students are proud to attend my school:						
All students	58.4	60.4	-2.0	57.0	61.1	-4.1
Students grades 4-5	*61.6*	*48.3*	*13.3***	*68.9*	*44.0*	*24.9***
Students grades 6-8	*55.7*	*69.0*	*-13.2***	*45.5*	*73.7*	*-28.2***
Students get along well with my teachers:[1]						
All students	52.9	47.7	5.3	56.5	45.9	10.6
Students grades 4-5	*58.8*	*44.5*	*14.4***	*66.5*	*40.1*	*26.4****
Students grades 6-8	*47.8*	*49.9*	*-2.1*	*46.0*	*50.7*	*-4.7*
Discipline at my school is strict:						
All students	76.3	65.2	11.1***	83.5	61.6	21.9***
Students grades 4-5	72.9	54.3	18.6***	81.5	49.2	32.3***
Students grades 6-8	79.2	72.5	6.7	84.7	69.9	14.8
Number of close friends I have at school:[2]						
All students	5.7	5.9	-0.2	5.6	5.9	-0.3
Students grades 4-5	*5.8*	*5.4*	*0.4*	*6.0*	*5.3*	*0.7*
Students grades 6-8	*5.6*	*6.2*	*-0.5**	*5.2*	*6.3*	*-1.1*
I would give my school the grade "A":						
All students	39.1	46.7	-7.6*	34.1	48.9	-14.8*
Students grades 4-5	*57.1*	*53.0*	*4.1*	*59.2*	*52.0*	*7.2*
Students grades 6-8	*22.9*	*41.7*	*-18.8****	*7.9*	*48.1*	*-40.2****
(N)	107-252	101-278				208-530

Figures may not sum due to rounding. Percentages weighted. N = actual number of observations. * = difference significant at p < .1, ** = significant at p < .05, *** = significant at p < .01; two-tailed tests conducted. Results in italics are significantly different between the student cohorts at p < .01 using a two-tailed T-test for differences in means, unless otherwise indicated in a footnote.

[1] Cohort difference only significant at p < .10.
[2] Cohort difference only significant at p < .05.

Table 15 – Students Changing Schools During the Year, Washington, DC

	Effect of Scholarship Offer			Effect of Going Private		
	Offer	No Offer	Impact	Private	Public	Impact
	(1)	(2)	(3)	(4)	(5)	(6)
Percent of students who changed schools during the school year:	8.2	10.3	-2.2	7.0	10.6	-3.6
Reasons why child switched school during the year:[1]						
Quality of school unacceptable	2.0	1.8	0.1	2.0	1.8	0.2
Moved away from school	1.5	3.7	-2.2**	0.4	3.9	-3.5**
Child admitted to preferred private school	0.9	0.0	0.9**	1.3	-0.2	1.5**
Child admitted to preferred public school	0.8	0.2	0.6	1.1	0.0	1.1
School too expensive	0.8	1.3	-0.5	0.5	1.4	-0.9
School in inconvenient location	0.8	0.4	0.4	1.1	0.3	0.8
Child was suspended or expelled	0.3	0.0	0.3	0.4	-0.1	0.5
(N)	537-551	517-536				1052-1084

Figures may not sum due to rounding and multiple responses allowed. Percentages weighted. N = actual number of observations. Grades 1-8. * = difference significant at $p < .1$, ** = significant at $p < .05$, *** = significant at $p < .01$; two-tailed tests conducted.

[1] Percentages are in terms of the total population.

Table 16 – Students Planning to Change Schools Next Year, Washington, DC

	Effect of Scholarship Offer			Effect of Going Private		
	Offer	No Offer	Impact	Private	Public	Impact
	(1)	(2)	(3)	(4)	(5)	(6)
Percent of non-graduating students who plan to attend the same school next year:	78.2	74.6	3.6	80.3	73.5	6.8
Reasons for the change:[1]						
Quality of school unacceptable	8.1	13.4	-5.2**	5.9	14.8	-8.9***
Child admitted to preferred private school	3.2	.0.6	2.5***	4.2	-0.1	4.3**
Moving away from school	2.8	7.1	-4.2***	1.1	8.3	-7.2***
School in inconvenient location	2.6	2.4	0.2	2.7	2.4	0.3
Prefer that all my children attend the same school	2.6	4.2	-1.6	2.0	4.7	-2.7
School too expensive	1.8	1.0	0.8	2.1	0.8	1.3
Child admitted to preferred public school	0.9	1.0	-0.1	0.9	1.1	-0.2
Child was asked not to return	0.0	0.0	0.0	0.0	0.0	0.0
(N)	423-559	373-540				794-1096

Figures may not sum due to rounding and multiple responses allowed. Percentages weighted. N = actual number of observations. Grades 1-8. * = difference significant at $p < .1$, ** = significant at $p < .05$, *** = significant at $p < .01$; two-tailed tests conducted.

[1] Percentages are in terms of the total population.

Table 17 –Program's Impact on African-American Student Test Scores, Washington, DC

	Impact of Offer	Impact of Private-School Attendance
	(1)	(2)
Reading		
Grades 2-5	1.0	2.4
Grades 6-8	-3.5*	-8.2*
(N)	252-558	252-558
Math		
Grades 2-5	2.9**	6.8**
Grades 6-8	0.9	2.4
(N)	253-511	253-511

Difference between test and control groups in National Percentile Points on Iowa Test of Basic Skills. Weighted estimates reported. N = actual number of observations. Observations excluded if scores either fell by more than 1 ½ standard deviations or increased by more than 2 standard deviations from baseline to first-year follow-up.. Statistical controls included for baseline math and reading scores as well as the differential conditions at pilot test. For complete results from these equations, see Appendix. * = difference significant at $p < .1$, ** = significant at $p < .05$, *** = significant at $p < .01$; two-tailed tests conducted.

APPENDIX

The Appendix has three parts: 1) a discussion of the procedures for adjusting weights; 2) tables of characteristics for those who did and did not attend the follow-up testing sessions and results of logit models used to estimate weights; and 3) full results from equations estimating impacts on test scores.

Construction of Weights

To adjust for differential participation rates in the follow-up sessions, weights were generated for parents and students in the treatment and control groups. Because those invited to participate in the follow-up study had provided information at baseline, it was possible to use information from the baseline survey to calculate the probability that each participant in the baseline survey would attend a follow-up session. As Table A1 shows, the background characteristics of both treatment and control-group parents who came in for testing one year into the program differed slightly from those who did not attend; because these differences are quite small, however, the weights do not significantly alter any of the findings presented in this report. For the most part, the background characteristics that predict participation in the follow-up survey are similar for the treatment and control groups.

To construct weights that adjust for differential participation rates in follow-up sessions, we ran separate logit models for the treatment and control groups for the parent surveys, the student surveys and the testing sessions. The results for the parent surveys are reported in Table A2. The dependent variable was scored one if the parent completed the year-one follow-up survey, and zero otherwise. The covariates included all of the demographic and test score information listed in Table A1. When baseline information was missing, means were imputed. The pseudo-R2 and

goodness of fit values suggest that the model does a reasonable job of predicting variance in the dependent variable.

The models generate a set of predicted values. These values represent the probability that each individual, given their baseline characteristics, would attend the year-one follow-up session. The weights are the inverse of these predicted values. The range of the weights was then capped so that the highest score was four times the value of the minimum weight. (This restriction affected only a handful of observations).

Table A1: Participation in Follow-Up Sessions, Summary Statistics

Individuals in Control Group who Attended the Follow-Up Session

Variable	Mean	Standard Deviation	Observations
Black	0.90	0.30	551
Not born in US	0.09	0.28	551
Residential Stability	3.56	0.77	551
Employment Status	1.73	1.01	551
Government Assistance	1.44	1.37	551
Family Size	3.15	1.53	551
Learning Disability	0.04	0.19	551
Catholic	0.16	0.36	551
Grade	3.76	1.68	551
Satisfaction	3.05	0.63	551
Math Test Scores	23.30	22.49	551
Parental Involvement	1.99	0.93	551

Individuals in Control Group who Did Not Attend the Follow-Up Session

Variable	Mean	Standard Deviation	Observations
Black	0.78	0.42	534
Not born in US	0.19	0.39	534
Residential Stability	3.40	0.84	534
Employment Status	1.75	1.01	534
Government Assistance	1.86	1.26	534
Family Size	3.05	1.52	534
Learning Disability	0.04	0.20	534
Catholic	0.21	0.39	534
Grade	3.80	1.73	534
Satisfaction	3.22	0.75	534
Math Test Scores	26.09	23.04	534
Parental Involvement	1.77	1.00	534

Table A1 Continued

Individuals in Treatment Group who Attended Follow-Up Session

Variable	Mean	Standard Deviation	Observations
Black	0.92	0.27	552
Not born in US	0.07	0.25	552
Residential Stability	3.45	0.80	552
Employment Status	1.79	0.99	552
Government Assistance	1.59	1.40	552
Family Size	3.05	1.63	552
Learning Disability	0.03	0.18	552
Catholic	0.13	0.33	552
Grade	3.81	1.70	552
Satisfaction	2.96	0.67	552
Math Test Scores	24.16	22.31	552
Parental Involvement	2.02	0.89	552

Individuals in Treatment Group who Did Not Attend the Follow-Up Session

Variable	Mean	Standard Deviation	Observations
Black	0.84	0.36	431
Not born in US	0.14	0.34	431
Residential Stability	3.55	0.77	431
Employment Status	1.62	0.91	431
Government Assistance	1.19	1.20	431
Family Size	2.97	1.50	431
Learning Disability	0.03	0.18	431
Catholic	0.24	0.42	431
Grade	3.95	1.82	431
Satisfaction	3.32	0.69	431
Math Test Scores	24.78	22.50	431
Parental Involvement	2.02	0.85	431

TABLE A2: Calculating the Probability of Completing Parent Survey at Year-One Follow-Up Session

Logit Estimates for Those Offered Scholarship

Number of obs	= 983
LR chi2(12)	= 104.70
Prob > chi2	= 0.0000
Log likelihood = -621.55011	Pseudo R2 = 0.0777

ylparsur	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
black	.4874028	.2721573	1.791	0.073	-.0460156	1.020821
nobornus	-.0002474	.2989954	-0.001	0.999	-.5862677	.5857729
resstab	-.2011669	.0886802	-2.268	0.023	-.3749769	-.0273569
employ	.0697757	.0823312	0.848	0.397	-.0915904	.2311418
govasst	.1493256	.0606173	2.463	0.014	.030518	.2681333
famsiz	.0089494	.0438665	0.204	0.838	-.0770274	.0949262
lrndis	.012889	.3857538	0.033	0.973	-.7431745	.7689524
cath	-.5326511	.1951277	-2.730	0.006	-.9150943	-.1502079
grade	-.0278759	.0397534	-0.701	0.483	-.1057912	.0500395
satis	-.7111684	.1029964	-6.905	0.000	-.9130376	-.5092992
math	.0019954	.0031124	0.641	0.521	-.0041048	.0080955
parinvol	-.0327693	.0788965	-0.415	0.678	-.1874036	.1218651
_cons	2.616847	.5765071	4.539	0.000	1.486913	3.74678

Logistic model for ylparsur, goodness-of-fit test

number of observations =	983
number of covariate patterns =	971
Pearson chi2(958) =	993.16
Prob > chi2 =	0.2093

TABLE A2 Continued

Logit Estimates for the Control Group

Number of obs	= 1085
LR chi2(12)	= 82.69
Prob > chi2	= 0.0000
Pseudo R2	= 0.0550

Log likelihood = -710.58644

ylparsur	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
black	.4999433	.2368716	2.111	0.035	.0356835	.964203
nobornus	-.1438782	.2585834	-0.556	0.578	-.6506923	.3629359
resstab	.2917935	.0802842	3.635	0.000	.1344393	.4491476
employ	-.139366	.0693349	-2.010	0.044	-.2752599	-.003472
govasst	.2019047	.0563504	3.583	0.000	.09146	.3123494
famsiz	.0338315	.0421217	0.803	0.422	-.0487255	.1163884
lrndis	-.2547217	.3213956	-0.793	0.428	-.8846455	.3752022
cath	-.1971626	.1769451	-1.114	0.265	-.5439686	.1496435
grade	-.0070833	.0373648	-0.190	0.850	-.080317	.0661504
satis	-.3135577	.0927845	-3.379	0.001	-.495412	-.1317033
math	-.0041574	.0028251	-1.472	0.141	-.0096945	.0013796
parinvol	.1578904	.0705623	2.238	0.025	.0195907	.29619
_cons	-.640757	.5219944	-1.228	0.220	-1.663847	.3823332

Logistic model for ylparsur, goodness-of-fit test

number of observations	= 1085
number of covariate patterns	= 1034
Pearson chi2(1021)	= 1077.18
Prob > chi2	= 0.1083

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Table A3: Analysis of Test Scores, Washington, DC

Impact of Being Offered a Scholarship

	READING				MATH			
	Grades2-5		Grades 6-8		Grades2-5		Grades 6-8	
Offered Scholarship	**1.01**	**[.46]**	**-3.47***	**[.06]**	**2.91****	**[.03]**	**0.91**	**[.63]**
Treat*Pilot	0.85	[.64]	-0.50	[.86]	-6.04***	[.00]	-3.80	[.21]
Baseline Test Scores								
Math	0.24***	[.00]	0.17***	[.00]	0.67***	[.00]	0.69***	[.00]
Reading	0.58***	[.00]	0.74***	[.00]	0.06***	[.01]	0.22***	[.00]
Constant	5.89***	[.00]	3.93**	[.02]	4.22***	[.00]	2.33	[.18]
Adjusted R^2	.67		.69		.50		.65	
N	511		253		558		252	

Weighted OLS performed. * significant at .1 level, two-tailed test conducted; ** significant at .05 level; *** significant at .01 level. P-values reported in brackets. African-Americans in grades 2-8 included. Individuals whose scores either fell by more than 1 ½ standard deviations or increased by more than 2 standard deviations from baseline to year one were dropped.

Impact of Attending a Private School

	READING				MATH			
	Grades2-5		Grades 6-8		Grades2-5		Grades 6-8	
Attended Private Schl	**2.41**	**[.47]**	**-8.19***	**[.07]**	**6.79****	**[.04]**	**2.43**	**[.63]**
Treat*Pilot	-0.20	[.94]	3.11	[.46]	-8.89***	[.00]	-5.05	[.28]
Baseline Test Scores								
Math	0.23***	[.00]	0.18***	[.00]	0.66***	[.00]	0.68***	[.00]
Reading	0.50***	[.00]	0.76***	[.00]	0.06**	[.02]	0.21***	[.00]
Constant	5.84***	[.00]	3.89**	[.03]	3.65***	[.00]	2.30	[.19]
Adjusted R^2	.67		.68		.48		65	
N	511		253		558		252	

Weighted OLS performed. * significant at .1 level, two-tailed test conducted; ** significant at .05 level; *** significant at .01 level. P-values reported in brackets. African-Americans in grades 2-8 included. Individuals whose scores either fell by more than 1 ½ standard deviations or increased by more than 2 standard deviations from baseline to year one were dropped.